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Outlook

Washington University School of Medicine

Summer 1976





VICE CHANCELLOR COMMENTS:

New federal health manpower legislation has been forthcoming for nearly two years. Whether we are now about to see completed legislation is not certain, since important differences still exist between various factions in the Senate and between members of the Senate and the House.

Many observers agree, however, that this legislation will prove to be an important watershed in the continuing relationship between the federal government and our medical schools. At stake is the independence of the schools with regard to admissions and curriculum.

While the final decision of Congress is yet to be reached, it is clear that many national legislators, including some of the most powerful, are ready to require significant commitments concerning admission policy and curriculum as the price for continuing much needed, in some cases vital, capitation grants.

For 25 years, our medical schools flourished with federal support made available through programs that did not force changes in policies concerning admissions and curriculum. This is not to say that major changes were not

wrought by federal funds. Quite the contrary: the face of medical education has been altered greatly, but these changes were voluntary and piecemeal. Each school was encouraged and helped to do what it could do best. Support was provided for a broad range of programs that were designed to meet national needs, without demanding that each institution follow a federal blueprint. It proved to be a successful partnership, and it showed that the federal government could participate in broad programs without unreasonable intrusion into, or domination of, our medical schools.

There is now good reason to fear that this relationship is to be altered in the direction of greater governmental intrusion and control. Many medical schools are financially unable to forgo capitation grants. Others believe that if capitation grants are rejected by many schools because of unacceptable conditions attached to such grants, similar conditions will be required for research grants or for medicare reimbursement. In other words, many believe that there will really be no choice.

Contributing to the frustration among medical educators is the recognition

that Congress, confronted by disturbing variations in geographic and socio-economic access to medical care and by steadily rising costs of such care, is trying to force medical schools to solve these problems, whether or not the schools can do anything directly about them. It reminds one of the story of the intoxicated individual who, although his wallet had been lost elsewhere, searched for it under the lamp post because the light was there. Congress can exert pressure on the medical schools because they need federal support, but it is hard to believe that the medical schools can be the principal instruments for solving the complex social, economic, and distribution problems facing our medical care system.

Perhaps by the time these comments are read, events will have reassured us, and the new law will indicate that the useful partnership between the federal government and our medical schools can continue without the latter being dominated by the former. One can be hopeful, but not optimistic.

*Samuel B. Guze, M.D.
Vice Chancellor for Medical Affairs*

On the Cover:



Dr. Sidney Goldring performing brain surgery on an epileptic. Using a procedure reserved for intractable cases, he implants electrodes to facilitate testing to determine whether brain tissue should be removed. See story page 2.

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Surgery Means Hope, New Life For Severely Afflicted Epileptics

By Linda Nielsen Weller

By looking at the young girl, smiling as she skied down a slope, one never could have guessed that she once had been an intractable epileptic. At the age of four, she had suffered frequent epileptic seizures, she had been paralyzed, could not see to one side and had a minimal vocabulary. Now, at the age of eight, she is skiing.

Surgery, in this case a hemispherectomy, at the Medical Center has meant hope for those intractable epileptics who once were resigned to a life of dependency upon others, always living with the threat of frequent and incapacitating convulsions.

Most epileptics are able to lead nor-

mal lives, either through the disappearance of the seizures over the years or by control of them with drugs. Yet, according to Sidney Goldring, M.D., professor and head of Neurological Surgery, 25 per cent of epileptics are difficult to control and in 10 percent, anti-convulsant medication is ineffective. It is for this group that surgery is considered.

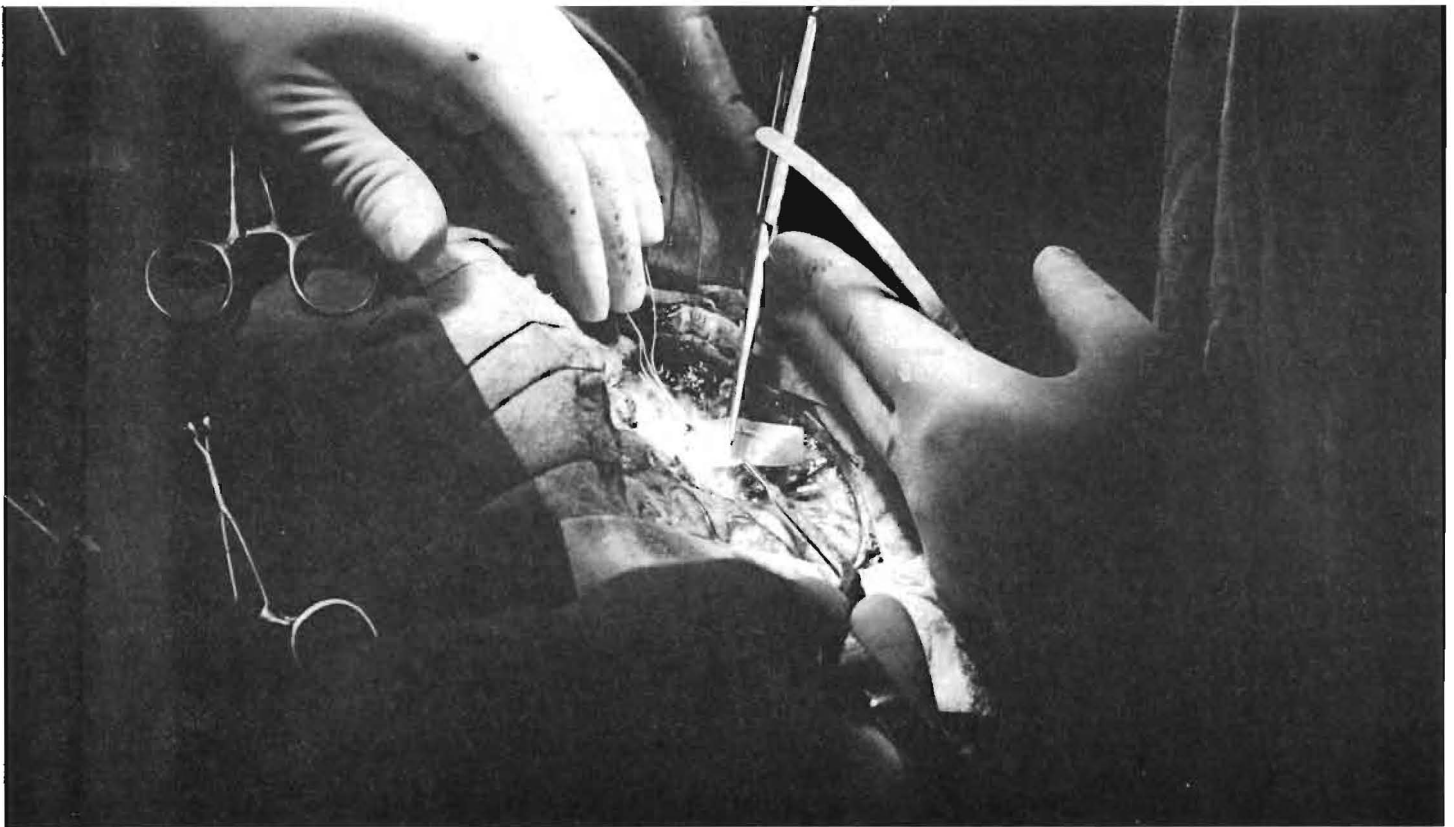
"These are patients who have epilepsy and for whom medical management has been tried for a long time, for several years—even as many as 10 years," explains Dr. Goldring. "All forms of medical management have been tried and the patients continue to

have seizures.

"In addition to being intractable to medical management," he says, "they also must meet other requirements before they can be considered for surgery."

He estimates doctors at the Medical Center perform about 10 such operations a year, varying from year to year: "We may do as many as 12 or as few as half a dozen."

Prerequisites for a patient to be considered for surgery include, says Dr. Goldring, "trouble in only one area of the brain, and it has to be an area which can be safely removed. It's not the speech area for obvious reasons



An electrode array is fitted into place on the surface of the brain to record and stimulate during testing.

and I also try to stay away from the motor area, although there are exceptions."

Causes of epilepsy are many, and before the decision to operate is made, the origin of the epilepsy must be determined. Says Dr. Goldring: "The first thing that is done with the patient is to make sure he doesn't have some clearly defined underlying abnormality such as a brain tumor or an abnormal nest of blood vessels because then the treatment of the epilepsy is the treatment of the condition itself."

"Usually when you take the tumor out or you take out the abnormal nest of blood vessels, the epilepsy also will improve just as other symptoms might improve."

"So, all patients who have intractable epilepsy undergo special diagnostic radiological procedures to make sure they don't have that kind of problem."

"The patient that presents the real challenge for epilepsy surgery is the patient in which there is no obvious cause, at least by the usual diagnostic procedures or one in which you can see only scar tissue," Dr. Goldring explains. "The reason you include the latter is because the epilepsy itself doesn't come from the scar tissue but from the brain tissue surrounding it. What still needs to be determined is which little area of the brain is giving the abnormalities so it can be safely removed."

Surgery on epileptics is not new. Through the ages nearly every type of remedy was recommended—and tried—to cure the misunderstood affliction. In ancient Greece it was called "The Sacred Disease," because, as Hippocrates wrote, "Men regard its nature and cause as divine from ignorance and wonder, because it is not at all like other diseases." Although Hippocrates did not regard it as sacred, the misunderstanding continues and today there still is a stigma attached to it.

Progress still is being made in detecting the precise areas of the brain responsible for the convulsions.

The area must be defined electrically by recordings, says Dr. Goldring. "Un-



Watching the television screens keeps the surgeon, Dr. Goldring, up-to-date on the patient's EEG and responses to stimuli.

fortunately one cannot do that through the conventional EEG recording. Putting electrodes on the scalp is very much like trying to assess what's happening in a forest by flying over it in a helicopter. You can see the trees moving and waving but you really can't see what's going on."

"The EEG," he says, "can tell you whether something is wrong on the right side or on the left side, front or back, but it can't tell you what the surgeon really needs to know—where is the area that is involved and what is its relationship to the vital areas of brain function?"

"In the past," he adds, "the surgeon had an idea that the trouble was on the right side of the brain or the left side both by the history as well as the EEG findings." The history, he explains, is the notation of where the symptoms start, i.e., twitching of the left thumb.

Previously, once the surgeon determined the side where the trouble spot was located, says Dr. Goldring, "the procedure was that the patient was operated on under local anesthesia. The reasons for that were several.

"First, the surgeon needed to identify the important areas of brain function, specifically motor function and speech. He needed to identify them so he could stay away from them. He also needed to identify the areas of abnormal electrical activity—precisely—and general anesthesia suppresses that kind of activity, and also makes it more difficult to identify the areas that control speech and movement."

During this procedure the surgeon would locate the abnormal electrical activity and then stimulate that area to see if it was vital to speech or motor activities.

If not, the surgeon would then excise that area. "This procedure had certain limitations," Dr. Goldring explains.

The main drawback to the old practice was the method of identifying the area where the seizures start was not foolproof. "And that's what you really want to take out and get rid of. The most important information that the surgeon can have is to be able to ac-

tually record during a convulsion or a seizure in order to see which area, and only one area, begins to show abnormal activity at the beginning of a seizure," Dr. Goldring says. "In other words, the other electrodes look relatively quiet while one area lights up so to speak and shows that that is the area where the seizure starts."

Another disadvantage to the old method was the patient may not have a seizure during the few hours the doctor is making records in the operating room.

"You really wouldn't want him to have a seizure," Dr. Goldring says, "when you are operating on his brain." The surgeon was limited in that he had to go entirely just by the interictal abnormal activity—the activity between the seizures—or the resting EEG.

Anesthesia also presented an obstacle by suppressing the abnormal electrical activity and by raising the threshold for producing movement and

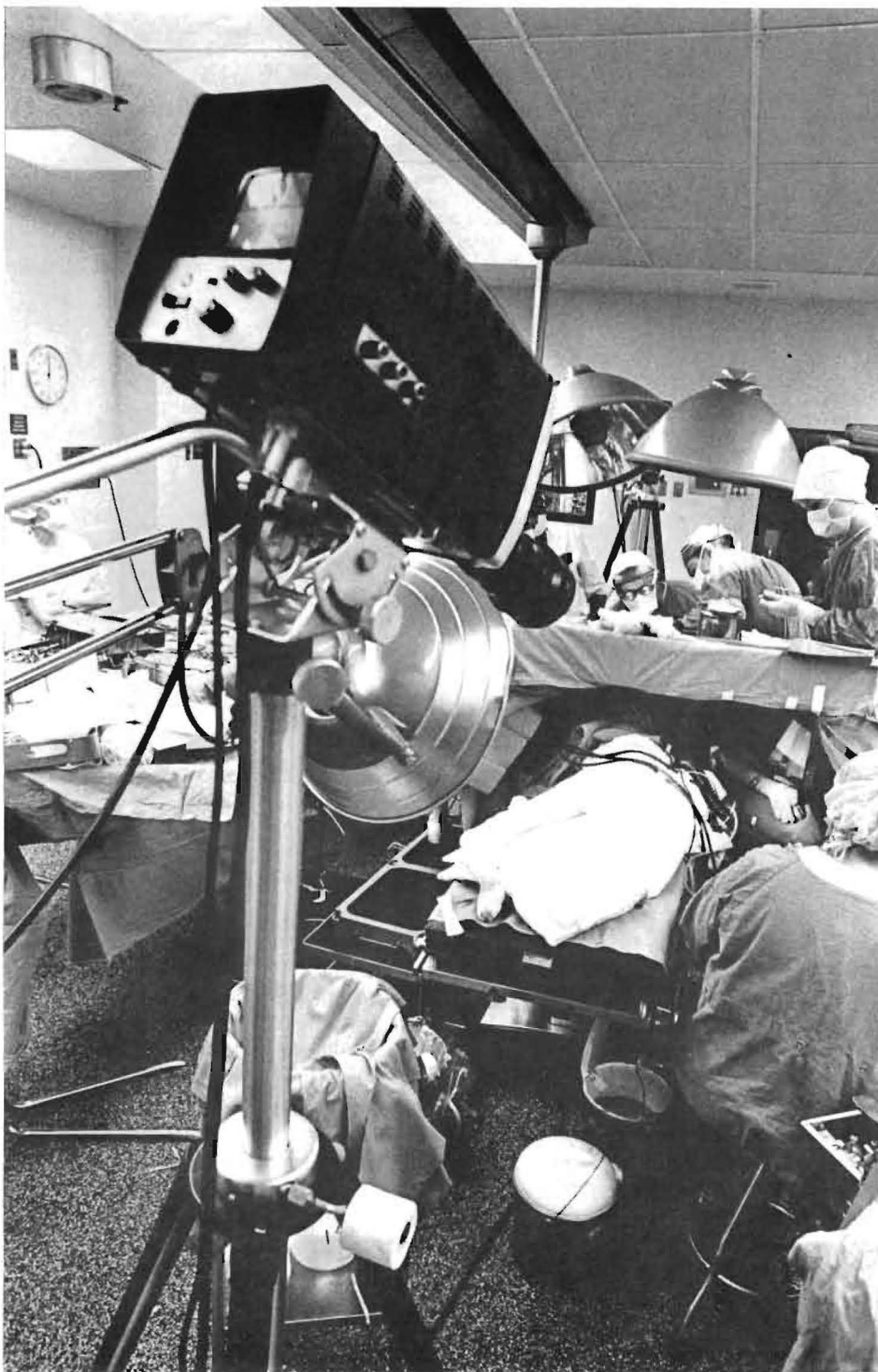
for stopping speech by electrical stimulation.

Another drawback Dr. Goldring mentions was that "the procedure couldn't be offered to all patients. It couldn't be offered to the patient who was apprehensive and might be uncooperative under local anesthesia even if he is adult. People under duress of surgery can become restless. You also had to have a person who is intelligent enough and cooperative enough to work with you. A significant number of patients couldn't be offered this procedure very readily and some had to be turned down."

Recent advances in testing have facilitated the pinpointing of functional areas of the brain under anesthesia. Also, the implantation of electrode arrays or templates have allowed doctors to test patients for longer periods of time than previously, when they were limited to the time in the operating room. Now, recording continues when



Carl Piper operates monitoring devices during surgery. The patient's hand is visible in the upper left corner of top screen. Other vital signs appear on different screens.



A television camera at the opposite end of surgery zeros in on the patient's left hand. The image appears on television screens which are visible to the surgeon and to operating room personnel, in addition to being projected onto split screens in the adjacent recording room. When the motor area of brain is stimulated, the hand will move. The camera behind Dr. Goldring simultaneously records the precise area of the brain that was stimulated to produce that movement.

the patient is back resting in his room.

The solution to the problem of identifying the sensory and motor areas under anesthesia occurred at about the same time. This is accomplished by recording minute nerve impulses from the brain surface that are evoked by sensory stimuli.

Prior to these advances, the electrical signal of a nerve impulse that was stimulated by outside sources could not be separated from other EEG waves. According to Dr. Goldring, a special-purpose computer now separates that particular signal from the rest of the EEG "noise."

Because of the feasibility of that, Dr. Goldring says, "We are now able to identify under anesthesia the area that is concerned with sensation of touch—tactile stimuli—and as that so happens, the area that is concerned with sensory function lies side by side with the area that controls movement. So, by identifying with the computer that sensory area, we immediately identify the two convolutions of the brain that are concerned with sensory and motor function."

Presently, the first step in the identification of the abnormal area is, while under general anesthesia, the patient has a craniotomy, as if for removal of brain tissue. Instead, the brain is exposed and the sensory motor convolutions are identified. This is facilitated through the use of television cameras focused on the patient's brain, hand and EEG readings to monitor responses to stimuli. In a room adjacent to the operating room, the data is computed and taped for future reference. The proceedings appear on split television screens for evaluation by the surgeon.

The dura is replaced over the brain tissue following the tests. An electrode array or template made of silastic and containing numerous electrodes provides the key to further locating the problem area.

"The array," says Dr. Goldring, "is placed over the surface of the dura so that some of the electrodes actually span the sensory and motor convolutions and the rest span the brain to in-



Surgery involves teamwork. Standing behind Dr. Goldring is Isaac Edwards, assisting in the long hours of EEG monitoring. Another important member of the team is anesthetist Carmen Wright (not shown).

clude the area of suspicion as well as the normal brain.

"The wound is then closed as if you were completing your procedure and the following day, while the patient is awake and resting comfortably, you spend the entire day making recordings. One can further go ahead and identify the speech area because you also can stimulate through these little contacts as well as take readings."

Speech areas in children now can be identified, he says, by having them count while electrical stimuli are being applied to different areas of the brain. When they stop counting, the surgeon knows the stimulus has come in contact with the area responsible for speech.

"You can make finer localizations of the sensory motor areas by stimulating the electrodes that produce movement. So now all those things you had to do in a hurry and under pressure in the operating room can now be carried out

leisurely the next day to identify the vital areas," says Dr. Goldring.

Identification, then, of both of the vital areas and the epileptogenic focus opens the door to surgery.

"Once this is done," says Dr. Goldring of the implantation, "and we know where our landmarks are, we spend the rest of the day just making records. One tv camera focusses on the patient and another tv camera focusses on the EEG and both of these images are presented on a split screen of a tv monitor.

"This is taped so that we have a continuous record of simultaneous EEG recordings and the behavior of the patient. When the patient does have a seizure, we can go back and study that tape and play it over and over again and see which area of the brain became abnormal at the very moment that the seizure began."

More than likely there would not be

any problem in getting the patient to experience a seizure that next day. "Our usual patients are those that are having frequent seizures, they are really incapacitated by their epilepsy," says Dr. Goldring. "They may be having one or two a day or as many as 40 a day. With those who have one every other day, we reduce their medication to increase the possibility that they will have seizures while under observation.

"We are frequently successful in being able to record during not just one seizure but more than one so that we can repeat it to see how sure we are of ourselves," he adds.

A modification is used on other patients who have infrequent seizures—one a day or less—whose occurrences cannot be predicted. Called telemetry, it consists of an amplifier within a box and is worn by the patient in his head dressing. This eliminates the wires connected to the tv cameras, says Dr. Gold-

ring. This, thereby, allows the patient to move about, eat his meals or sleep, during which his brain waves constantly are being broadcast to a receiver. In turn, the waves are played out on tapes.

Once the information is gathered on tape, the decision then can be made as to whether to excise any brain tissue. If no single area can be pinpointed as being the source of the epilepsy via the template, the electrodes are removed and the wound closed up. If an abnormal area is identified, and it is in a "safe" area, says Dr. Goldring, it is removed the following day.

So far, 74 patients have undergone this type of management at the Medical Center. According to Dr. Goldring, "Approximately 60 per cent have been improved by surgery."

By improvement, he explains, the patients' seizures either have been eliminated (with or without the help of medication) or markedly lessened in frequency.

Although the percentage of epileptics who need and can be benefited by surgery is low, the results are dramatic for those few. Says Dr. Goldring, "A large majority of patients with epilepsy are successfully treated and they lead normal lives and achieve very important positions."

As is true with any type of surgery, the risks also must be taken into consideration. "Doctors must weigh the risk of this delicate surgery against the possibility of the patient gaining a new existence," says Dr. Goldring. "What you take into consideration is, on the one hand, the quality of life the individual is leading. If he or she has seizures which are keeping him or her from earning a living or getting an education, that has to be taken into consideration.

"In addition to the seizures, since they are difficult to control, the patients usually are taking a massive amount of medication which also dulls them intellectually.

"It's difficult to imagine the kind of life that patient and family lead if you stop and think about it. It's traumatic. These people are living with this every single day. If it happens socially, it has

a stigma attached to it. It is a very disruptive symptom. If a person has a headache, he just excuses himself and goes away. But if a patient is sitting in a restaurant and suddenly has a convulsion it disrupts the entire restaurant."

"So you have to, on one hand, weigh that kind of existence with the failure to be independent against the possibility that surgery may benefit these patients," Dr. Goldring says "and there is the risk, as there is with surgery in general, that the patient may undergo complications. These risks must be weighed against the possibility that that patient may be given a new lease on life and these seizures can be stopped. There's nothing more gratifying than getting rid of the seizures."

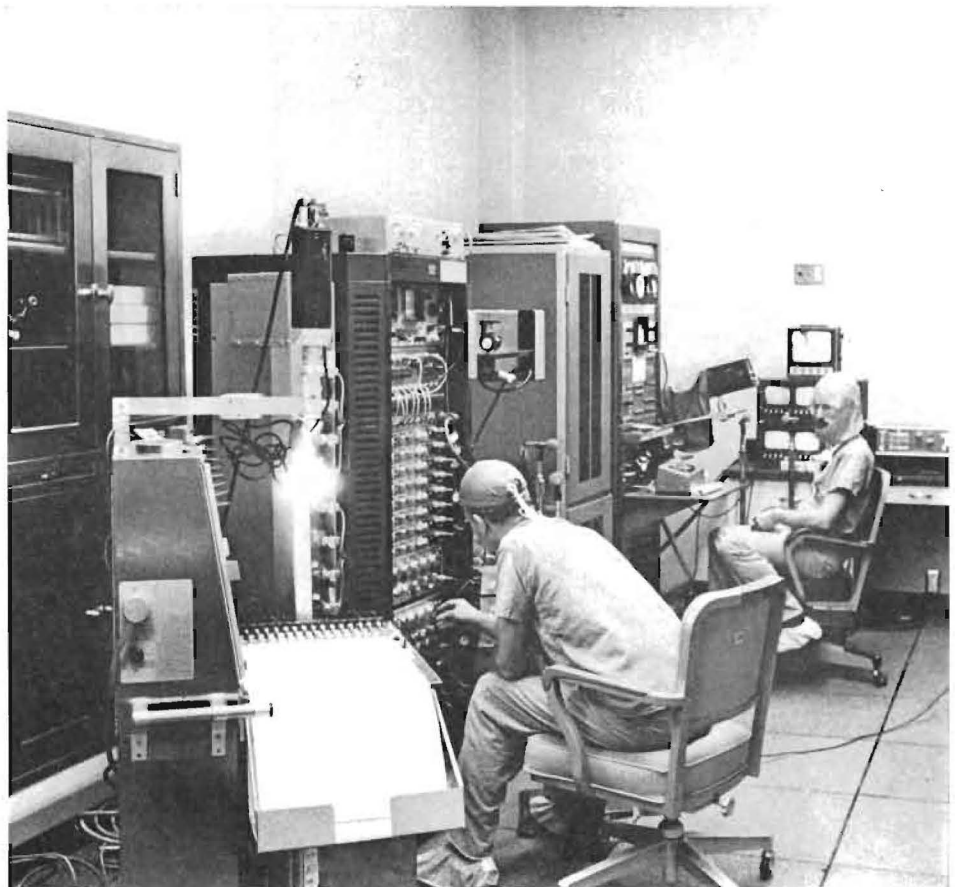
Dr. Goldring explains the reason sur-

gery for intractable epilepsy works is that diseased or "bad" brain tissue is worse than no brain tissue at all: "It's not as if that diseased brain tissue is capable of carrying on normal function at the same time. In fact, it only expresses itself by producing abnormal function."

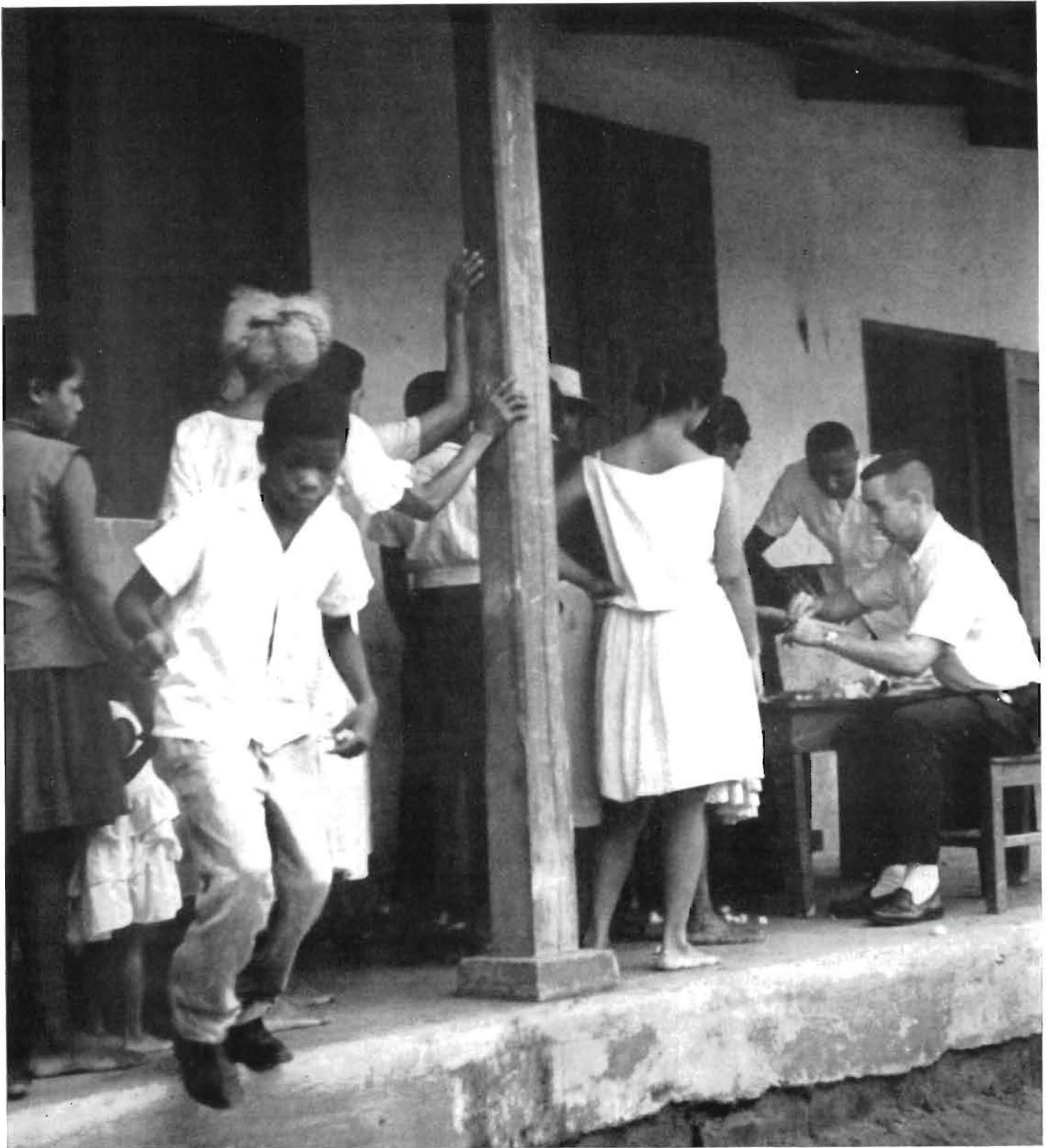
"You're taking out something that's bad and is never going to be any good," he adds. "It is affecting the normal brain tissue through connections it still retains with it."

With the tissue gone, the patients "have a new lease on life," says Dr. Goldring. "Having epilepsy does not mean the individual cannot achieve success."

And among those successes stands out one little girl's learning to ski, an impossibility before her surgery.



The procedure involves a team effort between those in the operating room and those in the adjacent recording room. Special expertise in electronics is provided by Lloyd Simpson and Carl Piper's knowledge of computers is necessary for monitoring and recording the operation.



Dr. J. Joseph Marr conducting a malaria survey in Pina, Republic of Panama while a member of the Special Forces.

Physician's Experiences in Tropics Contribute to Current Research

By Glenda King Rosenthal

Recently a woman who had returned from Central West Africa was referred to the Medical Center complaining that she had seen a worm in her eye. Her private physician felt she had filariasis and asked Washington University's tropical disease specialist, J. Joseph Marr, M.D., to see her.

After hearing about the worm, Dr. Marr was fairly sure the woman had filariasis, a disease caused by a filarial worm and characterized by skin nodules, and migration of the worms through blood and tissue. To determine this, Dr. Marr drew some blood from the patient at midday, at which time the loa loa worms are most commonly found in the bloodstream. (They are found in the liver, spleen and the lungs during other times.) Dr. Marr centrifuged the blood and found the filaria worm. Thanks to his knowledge of this unusual disease, the woman was treated and subsequently did very well.

According to a recent national survey, Dr. Marr, associate professor of medicine and pathology, is the only physician in Missouri who sees patients with tropical diseases. His interest in tropical medicine began when he was a Medical Officer with the U.S. Army Medical Corps, 8th Special Forces Group. From 1965-1967 he worked in Panama and for three months was assigned as advisor/instructor to the Enlisted Medical Corps of the Bolivian Army, LaPaz, Bolivia. This assignment was not completely accidental.

As Dr. Marr explains: "During my internship I realized that I would be drafted, so I wrote to the Surgeon General of the Army and indicated that I was interested in doing medicine somewhere in the tropics. At the same time, I said I did not want the standard position in a hospital or dispensary; I was more interested in doing medicine

in the less populated areas. In other words, I wanted an unconventional position. Consequently, I volunteered to join the Special Forces (Green Berets) and was assigned to Panama where I was a preventive medicine officer, among other things."

Dr. Marr says he was brought into contact with a certain amount of epidemiological work. He did malaria surveys, surveys for viruses, and also had to determine what bodies of water were contaminated with leptospires, since many troops developed leptospirosis while they were stationed in the tropics.

He also ran clinics in the jungles of Panama. "We usually got there by way of four-wheel drive vehicles," Dr. Marr explains, "occasionally by helicopter, occasionally by sea when there were no roads. I rode a horse one time."

Obviously the medical tools available were not terribly sophisticated. Dr. Marr describes it as "clinical diagnosis under primitive conditions."

"We carried all of the gear with us," he explains, "and we used the ordinary tools of the clinician. We had no X-rays or anything of that sort. We did have a small microscope that we'd carry with us and use whenever there was enough light. We used it for doing blood smears for malaria or gram-stained sputum."

Dr. Marr explains that the standard procedure for setting up a clinic was to go to the village and notify the mayor or the schoolteacher, who were both in a position of prominence in the village. They would get the people in by sending out children to look for them, or they would use a bell or an alarm to notify the people of the physicians' arrival.

"It was amazing how many people would come and from how far away. People would come in from six or seven miles, having heard that the clinic was

open. It was not uncommon to treat an entire family, except for the fathers, who usually did not attend the clinics. But the mothers would come and bring all of their children at the same time."

The team of physicians would use whatever physical structure was available to set up the clinic in, such as the school or front porch of a village meeting place. "We could only take with us the medications which we could carry," Dr. Marr says. "We took antibiotics and medicine for a variety of worms. We also left iron pills with the people. The diseases that we treated were primarily the nutritional deficiencies, iron deficiency being a very common one. Protein malnutrition and hookworm infections were extremely prevalent."

Dr. Marr says dental care was non-existent in the tropics. "Probably one of the most important members of the medical team was the dentist," he explains. "One of the things I learned to do down there was pull teeth because often there was no one else to do it."

Language would occasionally present a problem for Dr. Marr and the physician team. "We treated the natives, the indigenous people of Panama, primarily Indian or Mestizo, and had to speak in Spanish. I did speak a fairly fluent street Spanish, but occasionally in Bolivia we would have to use an interpreter. No one spoke English, and the Indians often didn't speak Spanish. So, we had to interpret from Spanish to Aymara, their native dialect."

Dr. Marr found it particularly frustrating to treat diseases that he knew would reoccur. "We could treat acute infections fairly well; we would leave the patient enough medication for a week to complete the therapy. We could treat iron deficiency anemia with iron pills, but we knew in each case the disease



The village of South Isabel was one of several visited by Dr. Marr.

would be back after we left. The most frustrating things to treat were the chronic things, like malaria and fungal diseases. These required long-term therapy which we usually couldn't give. We knew we would see the same patients back again."

Dr. Marr recalls a particularly frustrating case he encountered far back in the hills of Panama. He was running a small clinic in a village and a young boy came and asked him to come see a man who was too ill to visit the clinic.

"I got in a jeep, drove several miles to the hut, and found a man lying on a mat on the floor. He had been unable to move for several months. His right side was paralyzed and it was clear that he'd had a stroke. The man couldn't speak at all but he could understand, so I had to explain in Spanish to him

and his wife what had happened and why he would not recover much more function than he already had. This had a tremendous emotional impact not only on the patient, but also on me, to explain to someone under those conditions that he would be lying on that mat for the remainder of his days. There was also a terrific financial impact on that family because the farmer could no longer work his small plot of land, and of course there's no social security or insurance to support the family."

Children feel the ravages of many of these diseases more than adults do, Dr. Marr explains. "Somehow it's easier for me to accept diseases in adults than in children. I remember very well a small boy in the jungle who had

chronic leishmaniasis to the point where most of the cartilage in his nose and mouth had been destroyed. His face was horribly deformed and he could only make croaking sounds. He made his living by letting people take his picture."

After his time in Panama, Dr. Marr returned to the United States and earned a master's degree in microbiology from St. Louis University. He feels his stay in Panama influenced this decision. "The whole point of doing the work in microbiology," he says, "was to become familiar enough with microbial chemistry so that I could do investigative work in infectious diseases. I decided to go into infectious diseases because the clinical situations are dynamic and also provide an outlet for biochemical investigation. I



J. Joseph Marr, M.D., tropical medicine specialist.

see patients on the general medicine service as well as the infectious disease service."

In the course of his post-doctoral work, Dr. Marr worked with those organisms that cause intracellular infections because less is known about them than any other kind of infections. He started working with bacteria and then gradually switched to protozoan organisms because they constitute one of the largest reservoirs of unstudied infectious diseases in the world. "They're quite significant on a global scale," Dr. Marr says.

Dr. Marr has two long-term goals in this area. One is the understanding of the metabolism of these protozoan organisms that cause these intracellular infections. The other reason to study them is in the hope that by learning about their biochemistry, differences between the organisms and man can be found and exploited for purposes of chemotherapy.

The National Science Foundation and the World Health Organization (WHO) are supporting Dr. Marr's research: "The National Science Foundation is funding most of the basic biochemical work on carbohydrate metabolism," he explains. "The WHO has provided us with a grant to study the biochemistry of some substituted pteridine compounds as potential chemotherapeutic agents." He feels the work is quite promising, mostly because these agents are effective at low concentrations and are nontoxic to man.

Currently, work on leishmaniasis is being done in Dr. Marr's lab. They are studying carbohydrate metabolism in these organisms and contrasting the extracellular form with the intracellular form. "This work stems from work I've done over the last four or five years using non-pathogenic protozoans, and now we'd like to test these ideas on pathogens."

Dr. Marr, who also is Director of the Clinical Microbiology Laboratory of Barnes Hospital, commented that the microbiology lab recently looked at all of the parasitological specimens they had in 1975. "We had a little over 1,000,

93% of which were negative." There were only about 7% of the specimens that came through that had any parasites in them.

This is an indication that one can't really do clinical tropical medicine here to any appreciable degree. "I see many people who come here with a history of exposure to the tropics," Dr. Marr said, "but any thrust toward the study of tropical diseases has to be a research effort and not a clinical one."

Dr. Marr considers tropical medicine to be one of the major unsolved areas in infectious diseases. Except for viral diseases, illness that is indigenous to underdeveloped countries outnumbers anything else. Dr. Marr points out that malaria used to be the major infectious

disease in the world. It no longer is, thanks to mosquito eradication programs.

"In most transmissible tropical diseases, there is a vector of some sort which carries one form of the pathogen," Dr. Marr says. "Sleeping sickness and filariasis are transmitted through flies. There are often hosts which live near man which act as reservoirs. Dogs, for example, are important reservoirs of leishmaniasis. In the tropics, chickens are a major reservoir of American trypanosomiasis. These will never be eliminated because it is just not economically possible. As in malaria, the vector must be eradicated before the disease can be eliminated."

Only six U.S. medical schools have

tropical disease departments. They are Louisiana State, Tulane, Baylor, Harvard, Johns Hopkins and UCLA. However, Dr. Marr does not feel a tropical medicine department could be justified at Washington University. "We're in the center of the country where there's almost no clinical need for one," he says. "Most tropical medicine has been done by schools of public health, and medicine departments have been very slow to become involved."

Even though the need may not be there to justify an entire department, Dr. Marr does feel there are two reasons why the subject of tropical medicine is important. One is for the purpose of teaching. "Our medical students know virtually nothing about these diseases," Dr. Marr says, "even though they constitute major health problems from the global point of view."

"As time goes on, as we travel more, and as the world continues to shrink, we will see more and more of these diseases."

The other reason to study tropical medicine is from a research point of view. "There are many, many people in the world afflicted with these diseases and we know virtually nothing about them," he says. "I feel it is quite important to understand the basic biology of the organisms and explore avenues that are untouched in medicine."

Two years ago Dr. Marr was in Costa Rica for three months studying tropical medicine and parasitology. He furthered his clinical training, spent time at the University of San José learning how to grow leishmania, and also traveled in the rural areas.

Dr. Marr became convinced that the problem of medical care in underdeveloped countries was an economic and political one and not a medical one. "If people have shoes to wear, they won't get hookworm. If they have enough money to buy food, they are less likely to develop tuberculosis and the complications of viral diseases. I've seen, on two occasions, measles epidemics that carried a mortality rate of almost 50% in several villages."



A typical dispensary at Escobal.

Dr. Marr feels that if he were to go back now, the medical situation would be improved in and around the cities. However, he feels the people in the outer areas are still the forgotten ones. "They have no money, and therefore no voice in government and no access to medical care in major cities.

"These people have to go home," he said, "to the same economic and social circumstances that brought about the diseases in the first place."

Dr. Marr doesn't really know exactly why he wanted to go to the tropics. There is an exotic aura surrounding the study of tropical medicine. It somehow calls forth memories of Rudyard Kipling and slowly spinning fans. "Maybe I read too much Kipling and wanted to wear a pith helmet," he says. "The whole ecology, culture and language was different. In that setting, common things appear uncommon."

Dr. Marr feels his experience in the tropics was excellent. One of the most interesting aspects for him was actually

living a different culture and being able to view the United States from outside. "It looks very different from that angle," he said. "One is less likely to castigate someone for a different point of view if you've lived outside of the country."

Being exposed to these conditions emphasized two points Dr. Marr says. One, there was and still is a great deal of research and understanding yet to be achieved. Secondly, one can do a great deal using one's own eyes, ears and common sense.

"For most of the diseases in the world," Dr. Marr says, "there is no need for terribly sophisticated methodology." He feels here at the Medical Center, physicians deal with a small percentage of disease in the population in terms of frequency. "We get a very skewed view of what medicine is all about in this country. We have to train people in what is common as well as uncommon; we have to train them mentally for the kind of investigative work that

has to be done. But in terms of relieving common diseases in the world, we can do that much of the time with less sophisticated methods."

Dr. Marr would like to one day return to the tropics. He says the reason he didn't accept an offer to return is because progress and understanding are made best in those places where there is money and technological sophistication.

"I'm not naive enough to think the work I'm doing in the lab right now is going to change the face of the globe," Dr. Marr says, "but we will learn a certain amount about the biochemistry of these organisms and we'll pursue certain avenues in chemotherapy. What will probably happen is something we do will spark an idea in someone else.

"Sure, I would enjoy returning to the tropics, but the technological sophistication is here and that is necessary to do any kind of research. I'm definitely convinced that it's only through research that we make progress."



In his lab, Dr. Marr explains that research is the only way to solve the mysteries of tropical disease.

Graduation

Thirty Receive Awards At 1976 Commencement

Family and friends of 138 graduating medical students gathered to observe the 115th commencement May 21 in the Washington University quadrangle.

Later, after a luncheon in their honor at the Chase-Park Plaza Hotel, School of Medicine graduates were presented their diplomas. Thirty members of the class of '76 received academic honors during the afternoon ceremonies.

In addition two faculty members were recognized as "Teachers of the Year" by the graduating class.

Roy R. Peterson, M.D., professor of anatomy, and Morton E. Smith, M.D., professor of ophthalmology, were elected Alumni Teaching Scholars. Their respective departments will receive \$10,000.

The awards were made following an address by William A. Peck, M.D., the John E. and Adaline Simon professor of medicine at Washington University School of Medicine. He spoke on "The Myth of Medical Student Malnutrition."

Students from the St. Louis area who

were honored include:

Paul V. Carlile, Jr., Sallisaw, Okla.,
Wendy R. Eider, Flushing, N.Y., and
Diane L. Elliot, Salem, Ore., Mosby Scholarship Awards;

Colleen K. Flint, San Diego, Calif., Alpha Omega Alpha Book Prize and The Samson F. Wennerman Prize in Surgery;

Daniel I. Goldman, Norfolk, Va., Missouri State Medical Association Award;

Curt H. Hagedorn, Oxford, N.J., St. Louis Internist's Club Book Award;

Ruth E. Hetland, Mt. Vernon, Iowa, Medical Society Prize in Surgery;

John E. Krettek, Jr., Council Bluffs, Iowa, The Samson F. Wennerman Prize in Surgery;

Linda C. Loney, Marion, Kans., St. Louis Pediatric Society Prize;

Patrick J. Buckley, Mosby Scholarship Award;

Eugene C. Butcher, The Richard S. Brookings Medical School Award;

Robert L. Lamberg, Mosby Scholarship Award;

Lawrence E. Samuels, The James Henry Yalem Prize in Dermatology;

Beverly J. Ringenberg, The Samuel D. Soule Award in Obstetrics and Gynecology;

Other awardees were:

Richard L. Baron, Somers, Conn., The Dr. John Esben Kirk Annual Award for Scholastic Excellence;

Robin A. Bernhoft, Fargo, N.D., Upjohn Achievement Award;

Robert A. Brinkman, Omaha, The Alfred Goldman Book Prize in Diseases of the Chest;

Stuart I. Myers, Melrose Park, Pa., The Robert Carter Medical School Award;

Michael A. Pfaller, Eugene, Ore., The Jacques J. Bronfenbrenner Award;

Lawrence B. Schwartz, Rockville, Md., Medical Fund Society Prize in Medicine;

Reed E. Simpson, Evansville, Ind., Sandoz Award in Psychiatry;

Richard B. Spencer, Murray, Utah, Sidney I. Schwab Prize in Psychiatry;

Patricia A. Stapler, Northboro, Mass., The James Henry Yalem Prize in Dermatology;

Laurence E. Stempel, Northbrook, Ill., Alexander Berg Prize;

Marilou Terpenning, Roselle, N.J., Sidney I. Schwab Prize in Neurology;

Kathleen G. Todd, Portland, Ore., and
Jill E. Trice, Little Rock, Ark., Lange Medical Publications Book Awards;

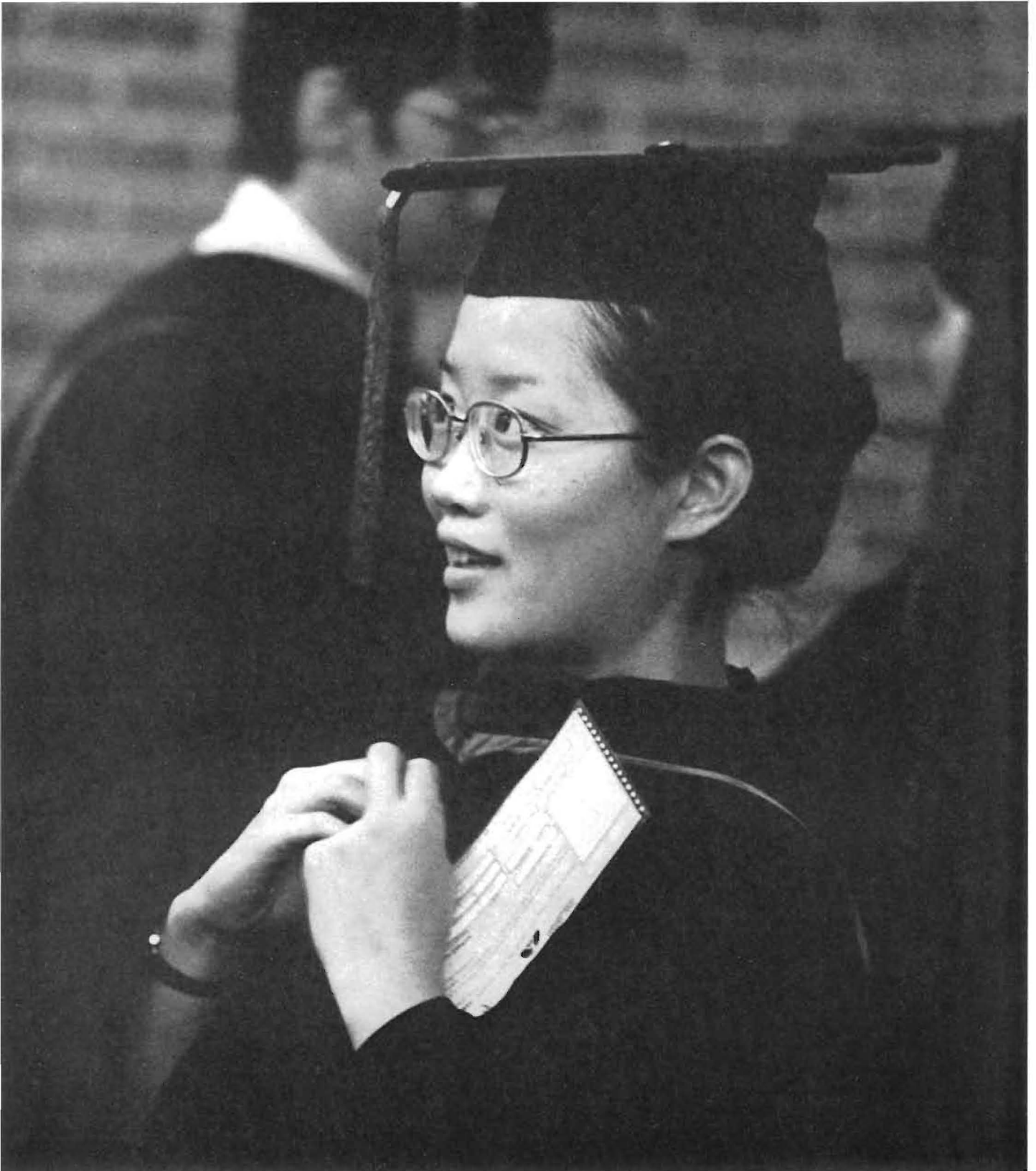
Thomas R. Turnbaugh, Cuba, Mo., The Louis and Dorothy Kovitz Senior Award in Surgery;

Henry J. Votava, Grafton, N.D., The Hugh M. Wilson Award in Radiology;

Michael H. Weissman, Flushing, N.Y., George F. Gill Prize in Pediatrics.

Forty-three of the graduating class will serve residencies in St. Louis. Others will be going to twenty-eight states, the District of Columbia and one will serve in Paris, France.





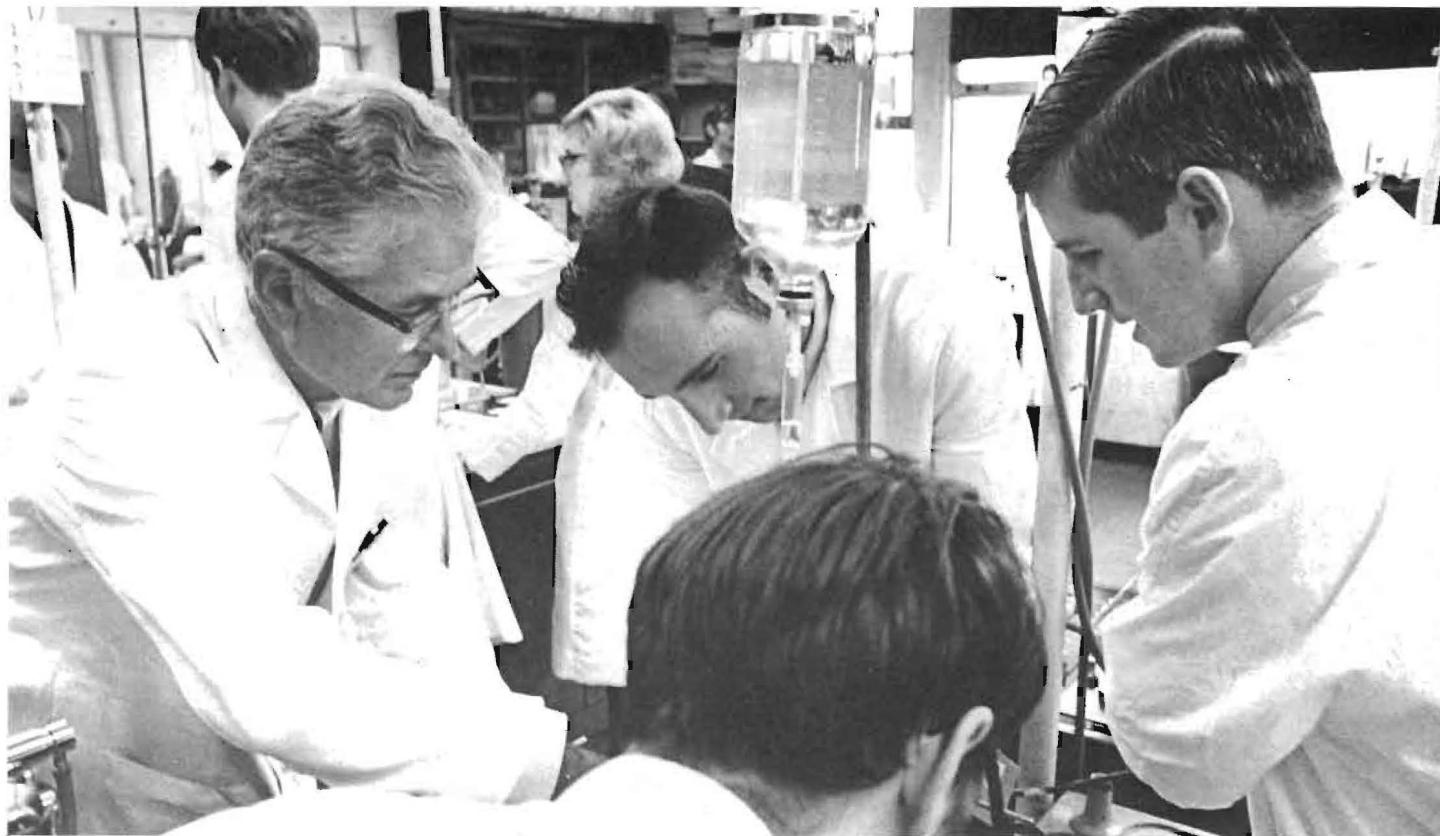


Attending Washington University graduations is getting to be a tradition in the Koppenbrink family (below). Walter E. Koppenbrink III was a third generation graduate of the School of Medicine and his two grandmothers were there to celebrate. Mrs. W. Wieman (left) was attending her second School of Medicine graduation while Mrs. W. E. Koppenbrink, Sr. (right) was witnessing her third. She attended in 1913 when her husband graduated and in 1945 when her son graduated. Behind the new Dr. Koppenbrink are his wife, Joan and his mother, Mrs. Walter Koppenbrink, Jr.



Needleman Succeeds Lowry As Chairman of the Department

By Sharon Stephens Murphy



In a 1969 photo, Drs. Lowry and Needleman work together in a teaching laboratory.

At 66, Oliver H. Lowry, M.D., Ph.D., is an enthusiastic and productive scientist. However, University rules require he retire at this age as chairman of the Department of Pharmacology.

Since coming to the Medical School in 1947 to head the department, Dr. Lowry has become world renowned for his work in microtechniques as well as for other research.

His awards include the Midwest Award of the American Chemical Society, the Merit Award of Northwestern University, the John Scott Award and the Borden Award of the Association of American Medical Colleges.

A member of the National Academy of Sciences, Dr. Lowry also belongs to the Royal Danish Academy of Science, the Harvey Society and the American Academy of Arts and Sciences.

In addition to department head, Dr. Lowry served as dean of the School of Medicine from 1955-58.

Fortunately for the School, Dr. Lowry is not retiring from all his activities. He will continue as professor of pharmacology and, of course, carry on with his many research interests.

Following in Dr. Lowry's footsteps is Philip Needleman, Ph.D. Dr. Needleman is considered to be one of the up-

and-coming young scientists at the School of Medicine. From 1964-67, he served as a postdoctoral fellow at WU. He joined the faculty in 1967 as an assistant professor of pharmacology. He became an associate professor in 1972 and professor in 1975.

In 1974, Needleman received the John Jacob Abel Award of the American Society of Pharmacology and Experimental Therapeutics, the highest research award in pharmacology.

Following are two profiles; one on Dr. Lowry and his achievements, another describing Dr. Needleman and his plans.

"He's a man of grace and style," says Dr. Needleman about his predecessor, Oliver Lowry. "Everybody knows how great he is. He's spent his whole life working for the school.

"I've always been his student, and I probably always will be."

Dr. Needleman's comments are echoed many times by those who know Oliver Lowry.

"He's an easy man to work for," says Margaret Phillips, administrative assistant in the Department for the past ten years. "It's really been a pleasure. Dr. Lowry is so great, yet he is very tolerant of us who aren't. He has a broad view of things."

It's common knowledge that Dr. Lowry is an outstanding scientist, but associates stress he's also a great person.

"He is always friendly and full of enthusiasm," says F. Edmund Hunter, Jr., Ph.D., who has known Dr. Lowry since he came to Washington University. "He has become well-known and liked for this and for his lack of stiffness.

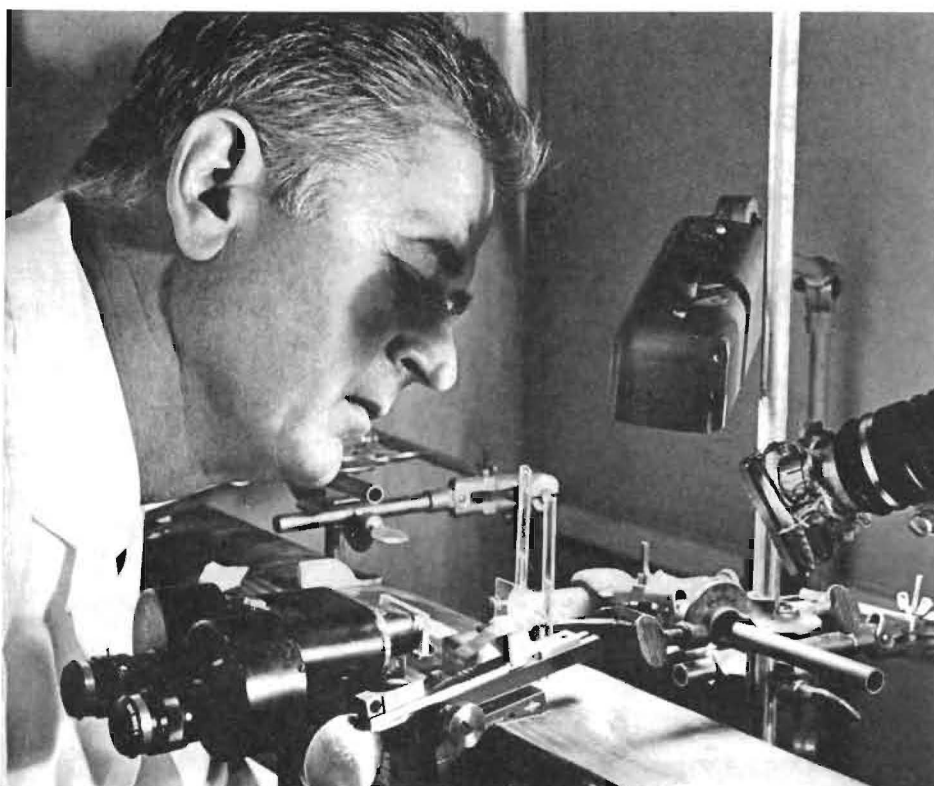
"People are stimulated and inspired by his spontaneity and breadth of interest," he continues. "Everyone who comes in contact with him is greatly influenced, probably for the course of his entire life."

Since 1949 only five faculty members have left Dr. Lowry's Department, all to become department chairmen elsewhere.

In addition, people have come from all over the world to work with him. More than 60 post-doctoral and 11 pre-doctoral students from 15 countries have come to Washington University to learn the techniques for which Dr. Lowry is world renowned.

Dr. Lowry developed these techniques in order to carry out his research in the micro-world of cells and subcellular components.

He long ago decided that organ systems, such as the brain and nervous system, which he has primarily been interested in, are highly complex and only rudimentary information can be obtained by examining the organ as a whole. He felt more details of the units of these complex organs had to be ob-



Dr. Lowry working with one of his most famous devices, the microbalance. It is necessary to read the balance by looking through a microscope.

tained before a real understanding of the biochemical mechanism underlying the function of the organ as a whole could be realized.

"Almost every organ in the body is structurally complicated," he says, "and we would like to know what the pieces are. In the old days, you ground up a liver, or muscle or a piece of brain, and what you were measuring and studying came from a lot of different kinds of cells.

"We know now that cells just a little ways apart are often very different, especially in the brain."

Because of this philosophy, Dr. Lowry has spent the last 29 years developing and refining the micro-methods needed to study single cells.

Dr. Lowry says he had already been dealing with minute biological entities. It was when he was working with the late Kaj Linderstrom-Lang of the Carlsberg Laboratories in 1939 that he became further interested in micro-techniques. While there he developed

a micro-balance which he has continued to refine and is now commonly used. At the time even the most refined balances could not weigh the small samples which Dr. Lowry was interested in, so he developed what is called the quartz fiber balance.

This balance is sensitive to a trillionth of a gram and is ingeniously simple: a filament of quartz, one-one hundred thousandth of an inch in diameter is fixed on one end and free on the other like a fishing pole. When the sample to be weighed is placed on the free end, the quartz dips in front of a graduated scale. The weight is read by checking the scale through a microscope.

This method has been extremely important to the scientific world. For the first time, it has allowed scientists to weigh single cells and even parts of cells. Such weighings are crucial to the process of analyzing the cells' contents and functions.

After leaving the Carlsberg Labora-

tories, Dr. Lowry returned to his position at Harvard Medical School as instructor of Biological Chemistry. In 1942 he joined the newly formed New York Public Health Research Institute, where he and Dr. Otto Bessey did nutritional studies. "We thought one of the things we could do for the war effort was to develop practical surveying methods in nutrition which you could apply to a population," he says.

Utilizing his experience in micro-techniques, Dr. Lowry worked out a method whereby only a drop of blood from a finger prick was needed to do vitamin assays instead of the standard 50 cc's.

In 1947, Dr. Lowry was offered the position of head of the Department of Pharmacology at WU. "I was a little surprised at the offer," Dr. Lowry remembers. "At the time I was in biochemistry and specifically involved with nutritional studies.

"But WU at this time had a tradition of not being very pharmacological. Cori was a biochemist and Gasser was a neurophysiologist, so I guess it wasn't too surprising for them to go outside of strict pharmacological circles to look for a department head.

"Anyway, I liked the place and I was flattered to think that Cori and Gasser had been here, so I took the job."

When Dr. Lowry arrived, he had three faculty members, F. Edmund Hunter, Ph.D., Helen Graham, Ph.D. and Mike Krahl, Ph.D., and five staff members. Since then he has increased his faculty to 15 and his staff to more than 50.

After coming to Washington University, Dr. Lowry continued his research in the micro-world of the brain and nervous system. "Nothing I have done has been directly involved with pharmacology," he explains. "But my philosophy has always been that the teaching curriculum should be pharmacology, but what people did in their research, as long as it was good research, didn't necessarily have to be strictly pharmacological."

Dr. Lowry says pharmacology is becoming increasingly important as more



Oliver H. Lowry, M.D., Ph.D., world renowned scientist.

and more useful drugs are developed and as the controversy over the effects of drugs continues.

"One of the most important things we can teach students is the side effects of drugs," he explains. "It's easy to say that this is good for such a disease, but the doctor should know what the dangers are as well."

Dr. Lowry's basic tools for micro-research (the freeze-dry method, quartz fiber balance, micropipettes, oil wells and amplification) have made an enormous contribution to the understanding of cell metabolism.

In nominating Dr. Lowry for an award, Dr. Helen Graham and Dr. Robert Burton wrote in 1969: "Few, if any, others in the world have made equal contributions to the micromethods for enzymatic studies. Without these techniques, detailed analysis of normal function and of diseases in complex tissue would be impossible.

While Dr. Lowry developed these methods to accommodate his work neither the concepts nor the techniques need be limited to one field, but may readily be used to facilitate research in all areas of biological and medical sciences.

Dr. Lowry's current research interest includes studying the first embryonic stages of mice. "There are a few days after the egg is fertilized before it is implanted in the uterus," he explains. "These are called preimplantation embryos. They are very tiny and don't grow although the cells divide." It takes 30 million of these egg cells to make a gram so micro-techniques are utilized.

In other research, Dr. Lowry is working with the WU Neuromuscular Disease Research Center in analyzing single human muscle fibers. "In most muscles there are at least three or four different kinds of fibers," he explains. "Our job is to look at them from patients who have muscular disease and see if the different types of fibers have changed since the onset of the disease.

"It's suspected in some disease that only one type of fiber is affected," he says. "Since we have micromethods, it is quite easy to analyze small pieces of

an individual muscle fiber."

Dr. Lowry is also involved with other scientists who use his methods to discover things about different systems. One unusual example is a plant physiologist who is working in Dr. Lowry's lab. He heard about the Lowry methods and is using them to tackle some problems he has with leaf chemistry.

While Dr. Lowry says he enjoys teaching his expertise is not in that area. "I really belong in the lab," he says. Few people could deny his expertise there.

In 1951, Dr. Lowry developed a method for measuring protein which was more accurate and simpler than any previous technique. As a result of the paper he wrote describing the procedure, Dr. Lowry became the most cited scientist in history according to the "Citation Index" published by the Institute for Scientific Information.

Dr. Lowry doesn't place much significance on this achievement. "To me it's not very meaningful," he says. "It is a method paper and when people use a method they feel obligated to cite it, and in this case it was a method for protein and a lot of people are working with protein."

Solving micro-problems is what Dr. Lowry's career has been devoted to. Dr. Robert Burton in an award nomination about seven years ago wrote: "A most important aspect of Professor Lowry's genius includes the courage of his philosophy—his willingness to devote years of "unproductive" work to the development of essential methods which are only now beginning to bear their fruit and to provide testimony that his approach to the study of the nervous system, and biology in general, is valid and essential."

Dr. Lowry's work has been essential to the research of countless scientists, many of which studied here with him.

"One of my greatest pleasures," Dr. Lowry comments, "has been watching people develop into really fine scientists."

Indeed, many of his students have become foremost in their fields which is a credit to Dr. Lowry, who is certainly a credit to Washington University and the School of Medicine.

Most scientists would agree, perhaps, that citation counting isn't the most reliable way to measure scientific excellence. However, Dr. Lowry is an eminent scientist by any standard.

However, Dr. Lowry's method of measuring is typical of his work. He has continued to develop precise and elegantly simple techniques for doing things.

"Dr. Lowry is a genius at developing methods to be applied to smaller and smaller tissues," says Dr. Hunter.

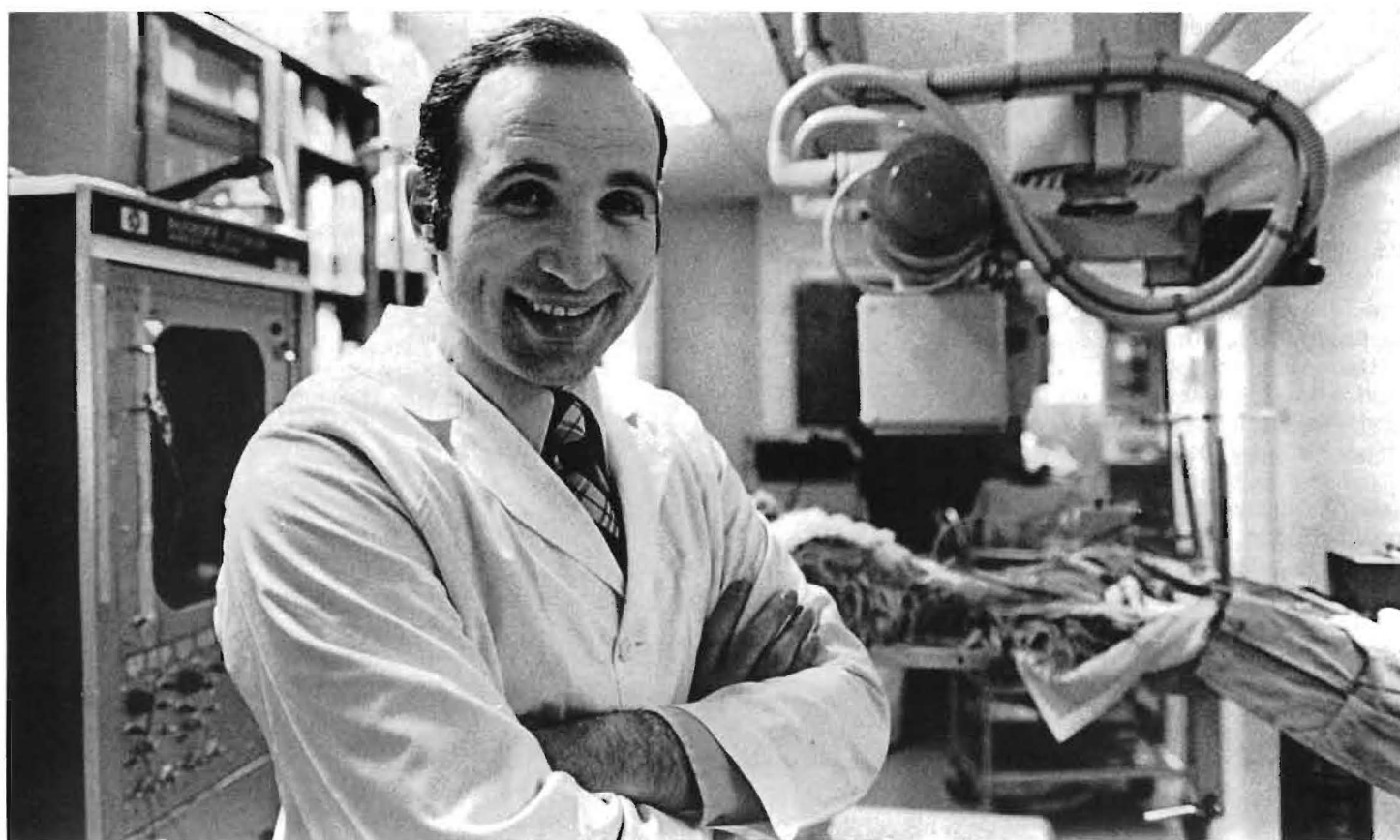
"Nothing challenges him more than to have someone say they would like to do something to a sample but it's just too small. Whenever this happened," Dr. Hunter continues, "Dr. Lowry would figure a way and come back and show them how it could be done.

"He would never take 'it can't be done' for an answer."

One of the problems Dr. Lowry ran into was he was getting samples so small they would evaporate before any tests could be performed. Scientists had long used oil to keep small samples from evaporating, so Dr. Lowry used that idea in formulating what is called the oil well technique. "All we did," he explains, "was to drill 60 small holes in a block and put the oil in the holes (wells). What we had was essentially 60 miniature test tubes. We put our sample in and did our experiments.

Lowry also developed a way to isolate and preserve cells without changing them. He does this by quick freezing the tissue, then cutting frozen sections and drying them at low temperature. At any later time the samples he wants can be cut out for analysis.

Another ingenious method he has developed is a chemical amplifying "trick" to measure the amount of enzymes or metabolites in a cell. The minute products of these molecules are built up in controlled chemical reactions to the point where the final products can be measured with great accuracy and are precise indicators of how much of the original substances were present in the cell. The amplification technique has become an invaluable biochemical tool.



Phillip Needleman, Ph.D.

"There is a tremendous scientific tradition in this department," Dr. Needleman says. "I have some tough acts to follow. Ollie Lowry isn't just a world renowned scientist and member of the National Academy of Science; he's a special guy. He's got an open mind," Dr. Needleman explains, "which grasps many different aspects of science, and in particular, he's taught us to enjoy research and provided an atmosphere that fosters an open, active exchange of ideas."

Before Dr. Lowry, chairmen of the Department of Pharmacology included Drs. Carl F. Cori and Herbert S. Gasser, both Nobel laureates.

Dr. Needleman's colleagues and friends agree that he, too, will probably be following in the scientific tradition which has been set in the Department of Pharmacology. They say he's doing exciting things, knows what he wants and where he's going.

Dr. Needleman attributes his success to being in the right place (WUMS Department of Pharmacology), at the right time (while pharmacology is becoming a more enticing field with challenging new problems), with the right people, and to the support of a special and understanding wife.

But people around him say Dr. Needleman's success is due to his dedication and love for his work and the unlimited energy and enthusiasm he has and can instill in others.

Even to talk to Dr. Needleman is exhilarating and motivating. Phil Needleman lives his life at 100 mph and his goal is to pursue excellence.

"Don't do anything if you're not prepared to make it good," is the philosophy that Dr. Needleman applies to himself. "We've got to have quality in our lives—uncompromised quality. The way to get that is hard work," he says. "If you don't pursue excellence, there

is little likelihood that you will succeed at the goals you want.

"I love my work," Dr. Needleman says. "I wake up in the morning and I can't wait to get to work. I work with vigor and surround myself with very energetic, committed people."

Pharmacology is the work Dr. Needleman loves. "We have the opportunity to study fascinating problems. Take the field of prostaglandins," he says. "It's a new and very active area of investigation. You don't go to a meeting and hear a repetition of old ideas," he explains. "Fifteen years ago there was less than a paper a year on the subject. Now there are about three papers a day in the area."

"Working with prostaglandins and especially with the newly discovered thromboxanes, nothing is solid. New observations are rapidly appearing. You have to frequently change metabolic schemes and ideas and alter hypoth-

eses to fit the new data. Pharmacology (which itself draws strength from many other disciplines) is ideally suited to jump into this kind of a problem."

Another thing which delights Dr. Needleman is the collaborating and interacting with numerous colleagues, something which is encouraged at Washington University.

"WU is unique in that it has very few artificial barriers between scientists or departments," Dr. Needleman says. "This medical school is best characterized by its great emphasis on the importance of science and not on an identified discipline or on whether you are in clinical or basic sciences."

Dr. Needleman became interested in pharmacology largely due to his exposure to a "great" teacher (Dr. G. V. Rossi) he had as an undergraduate. "If he was a botanist, I'd probably be dissecting Palisade's cells today. My lecturing and teaching still mimic what I learned from him," he says.

In this regard, Dr. Needleman twice has been elected "Teacher of the Year" by the medical graduating class, an award he highly prizes. "Teaching is not just stand-up lecturing," he says. "Teaching is exposure to medical and graduate students in the lab, and it's post-doctoral fellows and it's learning and being involved in grand rounds and going to conferences."

Teaching is one of Dr. Needleman's greatest pleasures but he doesn't separate it from research. He says he wouldn't want to have to choose between teaching and research. "In research, you go after a problem and it's tantalizing and hard and your hypotheses change as you get unexpected data. You have to have new models and new ideas. It's fantastic."

"Here at WU we have the luxury of doing both research and teaching," he says. "Good research is reinforced by teaching and by students. On the other hand, I doubt if someone could be a very good teacher for a long time if they weren't involved in research."

In 1974, Dr. Needleman received the John Jacob Abel Award by the American Society of Pharmacology and Experimental Therapeutics, the highest



Teaching students in the laboratory is one of things Dr. Needleman loves and does best.

research award in pharmacology given for independent and original research by investigators under the age of 36.

It isn't surprising that Dr. Needleman has goals of excellence in mind for the future of the Department.

"My hope is that we can recruit young, vigorous people who collectively sustain a highly productive environment. An excellent department is characterized by committed scientists who are also capable, enthusiastic teachers," he says. "I hope there will continue to be a lot of exchange in the department. People will be excited about what they are doing and be willing to interact."

While Dr. Needleman wants the Department to be strongly identified for its basic science, he is engaged with others in a program for the development and growth of clinical pharmacology. He emphasizes that the people recruited into clinical pharmacology will have a record of achievement. "They'll be engaged both in basic science and clinical research, especially in the application of pharmacological advances to therapeutics," he says.

Under the auspices of the Depart-

ments of Pharmacology and Neurology, a group is already being formed by James A. Ferrendelli, M.D., associate professor of neurology and pharmacology, for the study of clinical neuropharmacology.

Similarly, in a joint program between the Departments of Medicine and Pharmacology, Dr. Needleman hopes to see another clinical pharmacology group develop which will be involved in cardiovascular diseases and research with an emphasis on hypertension.

Dr. Needleman has been interested in clinical pharmacology for some time. Now, in his new position as department head, he plans to implement some of his ideas. Of his new position, he says, "In many institutions becoming a department chairman is like the kiss of death; you write off your science and become an administrator. But at this institution it doesn't have to mean that," he says. "I've watched people like Ollie Lowry, Max Cowan and many others who have kept their science productivity at a very high quality level and managed to administrate a good department."

"That's the way I hope to do it, too."

Modern Obstetrical Anesthesia Provides Safe Relief From Pain

By Glenda King Rosenthal

There is a common misconception among lay people and physicians alike which suggests that primitive women experienced no pain in childbirth. However, there is much evidence to the contrary. It is unlikely that the processes of labor and delivery and the physiologic basis of pain were any different in early times. Consequently, women throughout the ages have used any means available to them to gain relief from the pains of childbirth.

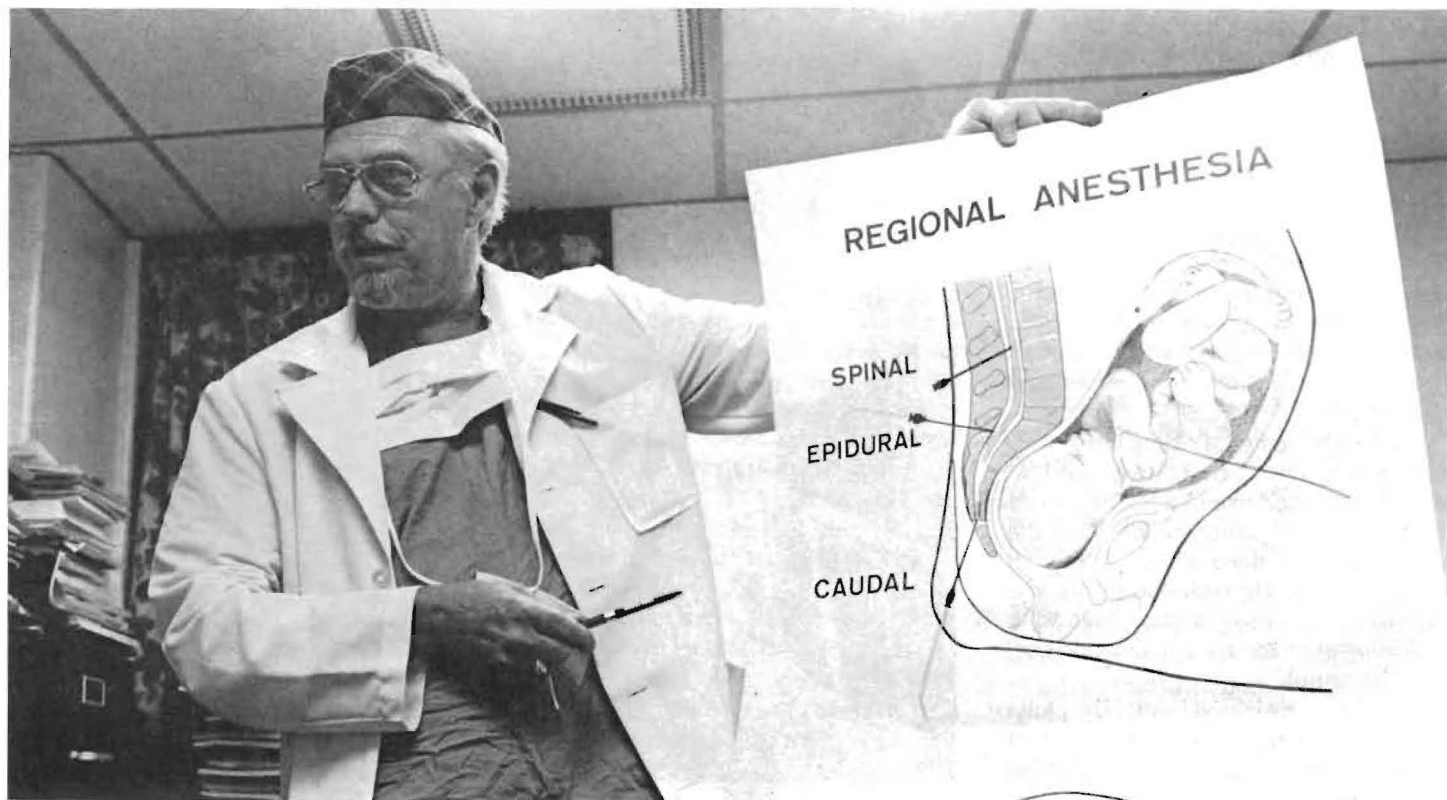
Both physical and psychological methods were first used in early attempts to alleviate pain. Brute force was also occasionally used. In order to hasten delivery of the child, tribal men resorted to jumping on the pregnant

woman's stomach. During this time, pain was considered to be an evil spirit and autosuggestion, incantations and spells were used by the woman to rid herself of the pain demons. (Today we refer to this form of distraction and suggestion as hypnotism.)

James D. Jones, II, M.D., associate professor of anesthesiology, obstetrics and gynecology and Director of Obstetrical Anesthesia, explains that with the advent of Christianity a woman in labor was expected to accept the pain as a means of obtaining grace. "They took literally the Biblical phrase 'In sorrow thou shalt bring forth children.' It was considered heretical to seek relief from pain."

During the Renaissance great advances were made in the area of science, but very little was done to control pain in childbirth. "As late as 1591," Dr. Jones says, "Eufame MacAlyane was tried and buried alive in Edinburgh for seeking relief from her pain during the birth of her twin sons."

The beginning of obstetrical anesthesia followed closely on the heels of the development of anesthesia in general. "In October of 1844 Horace Wells, a dentist, was a witness to a side show in which a Dr. Carlton was demonstrating the exhilarating effects of nitrous oxide," Dr. Jones explains. "The recipient of the drug had to be held by six strong men. In his excitement,



Dr. Jones illustrates three methods of obstetrical anesthesia.

he managed to break away and run. The man injured his leg rather severely, but when Wells saw him soon after the injury, the man expressed no pain.

The next day Wells had Carlton administer nitrous oxide to him while a partner extracted Wells' tooth. Thereafter, Wells used nitrous oxide in his practice. Later he obtained an audience at the Massachusetts General Hospital but the demonstration was unsuccessful and nitrous oxide was not accepted."

William T. G. Morton, a former dental partner of Wells, was studying medicine at Harvard. He decided to try ether because the medical literature said it had analgesic properties. He tried it on dogs and in his dental practice with successful results.

"Morton gave the first public demonstration of surgical anesthesia at the Massachusetts General Hospital on October 16, 1846," Dr. Jones says. "By December of that same year it was in use on the continent; that's how quickly it spread even though Morton tried to hide what he was using. Morton's downfall was trying to cash in on his discovery rather than sharing it with his colleagues."

Dr. Jones says the real father of modern obstetrical anesthesia is J. Y. Simpson, a London obstetrician. He first used ether in childbirth on January 19, 1847, and chloroform on November 8 of the same year. Some physicians and the general public were violently opposed to anesthesia in obstetrics, but the clergy was particularly opposed. They considered Simpson a heretic and blasphemer.

"I've read some of Simpson's writings in *The Lancet*. He pointed out that the first recorded use of anesthesia was in Genesis 2:21 which reads 'And the Lord caused a deep sleep to fall on Adam . . . and He took one of his ribs therefrom.' Simpson argued that what God Himself had done could not possibly be sinful."

Dr. Simpson joined with Dr. John Snow, considered to be the father of general anesthesia, in administering chloroform to Queen Victoria for the birth of her eighth child, Prince Leo-

pold in 1853. Her positive reaction is considered an important milestone in the history of obstetrical anesthesiology.

"Snow and Simpson reported the case to *The Lancet* but it was not accepted because of the opposition of its editor. However, when Queen Victoria was again safely administered chloroform in 1857 for the birth of Princess Beatrice, *The Lancet* did publish the results. This announcement sanctioned the use of chloroform from a moral and medical point of view, because the Queen could do no wrong."

Chloroform and ether were both used after that, but there was an argument as to which drug was the best. During the 1850's-90's many "commissions" were appointed to try and determine the relative safety of the two drugs. "The investigators concluded," Dr. Jones says, "that the most important thing was the administrator of the drug. And that is still true today; the knowl-

edge and clinical acumen of the administrator is the key to safety in obstetrical or any other type of anesthesia."

Twilight sleep was introduced into obstetrical anesthesia in the 1920's. This method was very popular for quite a long time, mainly because women were generally pleased with the results. "The new mother would return home," Dr. Jones says, "and say how wonderful her doctor was because she 'didn't feel a thing.'" The woman had not realized that she most definitely had felt pain and, in fact, had been hyperactive with her pain. These women were physically exhausted from their labor and the baby usually reflected a similar physiological state."

Twilight sleep is no longer in general use, but mild combinations of sedatives, narcotics and tranquilizers may be used in early labor to relieve discomfort.

Anesthetic techniques which are available today include general anesthesia which is usually reserved for



Dr. Jones checks a woman in labor; at the right is the fetal monitoring system available in all labor suites.

Caesarian sections. "The danger of vomiting while asleep and inhaling the stomach contents precludes the routine use of general anesthesia in a vaginal delivery," Dr. Jones says. "However, unexpected obstetrical problems associated with delivery may require the use of general anesthesia. On the other hand, inhalation anesthetic gases may be used in analgesic concentrations so that the patient does not lose consciousness but has considerable relief of her pain."

Regional anesthesia, which is the use of local anesthesia to cause numbness in an area where pain occurs may be done in several ways. The desires of the mother, Dr. Jones says, along with her physical condition, the condition of the fetus, and the type and stage of labor help her physicians to select the most suitable method of anesthesia.

"During active labor a paracervical block may be used. This block requires the injection of local anesthesia on each side of the cervix and is not applicable after the cervix has dilated more than eight centimeters. Considerable controversy developed five or six years ago when a high incidence of slowing of fetal heart rate was reported after the use of a para-cervical block. Improved techniques and better knowledge of how to manage fetal bradycardia has lowered the incidence of difficulty and the objections to the use of paracervical blocks. This block does not provide anesthesia for delivery."

Dr. Jones says other methods, such as continuous lumbar epidural, or caudal, may be started when labor is well advanced and can be continued for the actual delivery. "These methods involve placing a small plastic catheter inside the lower back through which local anesthesia can be injected. Lumbar epidural, sometimes called peridural, is the most popular block because not only is the degree of relief more profound but it is also a more versatile anesthetic. Epidural anesthesia may be used for comfort during labor and extended to cover vaginal delivery or even extended for anesthesia during Caesarian section."

According to Dr. Jones, the simplest form of regional anesthesia during the second stage, or delivery period, is local infiltration or bilateral pudendal nerve block. "These are relatively easy to give and remove a great deal of the discomfort. These methods are used just for delivery and inhalation of anesthetic gases in analgesic concentrations may be combined with them."

Today many mothers, obstetricians, and anesthesiologists prefer low spinal anesthesia (saddleblock) because of the fast and complete pain relief and because it disturbs the mother's and baby's life processes so little. "We particularly like this method," Dr. Jones says, "because it gives the most anesthesia with the least drug effect. The medication is injected when the baby is about ready for delivery. This is the safest form of complete analgesia and anesthesia."

The concept of natural childbirth, advocated by such proponents as Grantly Dick-Read and Ferdinand LaMaze, have further improved the care of obstetrical patients. The more natural methods of childbirth evolved as people realized that drugs were not good for the baby.

"It is difficult to give a drug to the mother," Dr. Jones comments, "without that drug affecting the baby to some degree. We used to feel that certain methods did not affect the baby, but we now know that it is hard to do anything to mother without affecting the baby. All of our sedatives, analgesics and anesthetics cross the placental barrier. We try to find the drug that produces the most analgesia with the least side effects on mother and baby."

Dr. Jones observes that the newborn whose mother was heavily sedated during labor and delivery is easily recognizable. "There are neuro-behavioral techniques used to examine the newborn that can detect if the mother has had as little as one shot of Demerol."

Dr. Jones feels most obstetricians and anesthesiologists want what the patient wants for herself. "I know of no doctor," he says, "who would discourage a woman from using the minimum

amount of anesthesia she feels is necessary. I, personally, am very much in favor of as little anesthetic as possible because I am concerned with mother's and baby's safety as well as mother's comfort. I wish we had a nonpharmacological technique we could use for the mother because we're just beginning to scratch the surface on possible drug effects on the baby."

The natural, psychological techniques, sometimes referred to as psychoprophylactic, of childbirth are excellent if the mother attends classes and learns to understand the processes of labor and delivery. Fear is recognized as one of the greatest accentuators of tenseness and pain. Dr. Jones feels that if a woman understands what is happening to her body, she will be less frightened and more relaxed.

"The psychological boost from concentrating on the LaMaze method of breathing during labor helps to get the woman's mind off of pain," he says.

Some women demand some type of drug from the time they first arrive in the labor suite. Dr. Jones feels these women should be encouraged to allow their labor to become active before they receive any medication. This can be partially accomplished through understanding and compassionate labor room personnel. They need to be able to relate to the patient and to keep her from becoming frightened. The participation by the expectant mother in childbirth education classes and the proper management of the patient in labor does a great deal in reducing the amount of drugs that are necessary.

"Pain has its emotional and psychic components as well as its somatic qualities," Dr. Jones says, "so supportive techniques are extremely important."

Not many women can go through terminal labor and deliver without some sort of anesthetic. Dr. Jones emphasizes that a woman is not expected to do so, particularly with a first baby. Only about twenty percent of women can be hypnotized to an analgesic level.

Dr. Jones stresses, "There's no reason for a mother to feel she hasn't had



Dr. Jones in his plaid surgical cap is a familiar sight in the delivery rooms.

thesia which is usually reserved for as fulfilling an experience if she takes some sort of anesthetic. It is only natural, and certainly nothing to be ashamed of. Unfortunately, this is an attitude that present day techniques of psychological support have allowed to emerge into their teaching."

Almost all of the women who come through Barnes maternity have some sort of anesthetic for terminal labor and delivery. Occasionally, Dr. Jones points out, the wife and husband are at odds over the use of anesthesia. "We recently had a husband who was irate with his wife because she expressed the desire for some sort of medication. Of course, *he* wasn't having the baby! The natural childbirth classes should emphasize to both the husband and wife that the woman won't be less of a person if she accepts medication. It's only human nature; a person can only go so far. The 'natural' can sometimes be overdone."

Dr. Jones is in favor of the father being present for labor and delivery as long as he is supportive of his wife and her wishes. This can certainly be a moving, emotional experience for both people. Dr. Jones comments: "If the father is going into the delivery room with his wife, we prefer that he go to the childbirth classes. We want him to understand what is going to happen so he won't be upset about things that are done. Occasionally we do have to ask a father to leave if there's some sort of complication, and we do want him to understand this beforehand."

Dr. Jones feels the birth of a baby is a miracle and natural to a degree, but there are many things that can be done to make the natural process safer. He is convinced that the safest place for childbirth is in a hospital. "I hate to hear this preaching of 'let's go back to the home.' There are so many things that can happen at a delivery that require expertise. The most vulnerable time of a person's life is that first few minutes after birth. The chance of crippling by asphyxia at this time is always eminent. Every delivery needs

one person who devotes all of his attention to the baby."

Dr. Jones feels that the obstetrical area is an acute medical area and it is necessary to have the most modern facilities and knowledgeable people available for safe delivery. "We need to allow the newborn to achieve the full capabilities which it has inherited and not be "short-changed" by asphyxia at birth."

"There are approximately half a million children afflicted by cerebral palsy and six million mentally retarded children in this country," Dr. Jones says. "Much of this can be avoided by certain simple techniques. In a recent NIH national collaborative study, it was determined that 31 out of every 1,000 live births had some neurological deficit, and 1.5 percent of all one-year-olds had some sort of neurological deficit. However, at four years of age it wasn't detectable. The brain is wonderful for compensating, but the scar is still there, and the trouble it can produce in personality, reading or memory problems may be very insipient."

Dr. Jones considers the area of perinatal medicine one of growing interest and importance. "The increasing knowledge of the physiology of gestation and utero-placental physiology, along with the development of techniques for determining fetal well-being, allow the obstetrician and other members of the perinatal team to better prepare for early intervention or the management of labor and delivery. The more we learn about the perinatal period and anesthesiology's contribution to it, the more fascinating it becomes."

Dr. Jones is not an advocate of the Le-Boyer method of delivery, a method that encourages a darkened, quiet delivery room in order to lessen the trauma of birth. "We like to be able to see the baby when it is delivered. It is extremely important to make an immediate evaluation of the infant. Initially, we want the baby in good light and under radiant heat for the newborn loses heat rapidly. Of course we do encourage early contact between mother and in-

fant. After the baby's temperature returns to normal, we like the mother to hold her baby and nurse the baby if she desires."

Unfortunately, most women do not discuss with their obstetrician what type of anesthetic is available to them. Occasionally, Dr. Jones says, a woman will make an appointment with the anesthesiologist to discuss her alternatives.

"There's certainly nothing like answering a woman's questions to help alleviate her fears. We also have to make it clear to the patient that she might not get the method she had originally planned because we have to be able to change techniques if the situation warrants it. If we have not previously visited with the patient, we explain to her when she is in the labor suite what she can have at various stages of labor and delivery. One of our residents is there at all times. And, of course, someone is there at each delivery. The quality of coverage we have here for obstetric anesthesiology is excellent."

More has been accomplished in understanding safe obstetrical analgesia and anesthesia in the past twenty years than in the entire last century. The modern expectant mother can expect the best possible methods to be used for her comfort and safety during labor and delivery.

Obstetrical anesthesia is a science that affects the lives of two people. Dr. Jones feels that anything that can be done to assure that a baby will be born with all of its inherited potential is well worth the effort.

"All of our fetal monitoring, etc., helps us to save lives and deliver healthier babies. The quality of life between the slap and the stone is what counts, and preventive medicine helps us to achieve better quality. In summary, the entire perinatal team—nurses, obstetricians, anesthesiologists and pediatricians—have in mind one common goal. That is a healthy, well-born baby delivered to a happy, healthy mother."

Anthony Studies Children at Risk For Psychosis

E. James Anthony, M.D., Director and Blanche F. Ittleson Professor of the Division of Child Psychiatry, has received a \$658,450 grant from the National Institute of Mental Health (NIMH) to continue his research of children of psychotic parents.

In addition, he has received a \$60,000 grant from the Grant Foundation to study mental breakdowns during adolescence.

Research indicates that 25 to 35 per cent of the untreated children of psychotic parents will become mildly to severely disturbed during childhood. Those who do not become ill as youngsters are not necessarily immune, however. As adults, about 10 to 15 per cent with severely disturbed parents will become psychotic if untreated.

For the past ten years Dr. Anthony and his staff at the W.U. Harry Edison Child Development Research Center have been assessing what makes a child vulnerable to disturbances in the parents. "Even in the same family," Dr. Anthony says, "one child will be affected by the parental disturbance and another will not."

The level of vulnerability of these children, the risks they face and possible means of intervention are the three main areas being investigated by Dr. Anthony.

"We have found that the best sort of preventive guidance is to attempt to guide the parents in terms of their parental function," Dr. Anthony says, "and to help the child establish a relationship with a normal person."

Making sense out of the nonsense and rationality out of the irrationality surrounding them is the central prob-

lem for offspring of psychotic parents. Dr. Anthony and his staff try to give the children realistic ways to approach a situation, means which do not involve dreams or magic or superstition.

During the next five years, the researchers will evaluate the effectiveness of their treatments by doing a follow-up study of their past patients, some of whom are now married and have children of their own.

Dr. Anthony hopes to find ways of predicting and improving the chances of these children and in the process discover new clues to some of the mechanisms of mental illness.

Names Make News

Carlos Perez, M.D., professor of radiology and **William McAlister, M.D.**, professor of radiology and of pediatrics, were admitted as Fellows to the American College of Radiology.

Michel Ter-Pogossian, Ph.D., professor of radiology, has been awarded an honorary fellowship by the American College of Radiology for his outstanding contributions to radiology.

Graduating seniors **Jonathan C. Greenberger**, **John Krettek** and **Allan Teranishi** have been installed as members of Alpha Omega Alpha, a national honor society.

The society, which recognizes outstanding leadership and scholastic ability in medicine and related fields, is considered to be the profession's most prestigious honor society.

Virginia M. Badger, M.D., assistant professor of orthopedic surgery, has been named chief surgeon of orthopedic surgery at Shriners Hospital for Crippled Children.

She is the first woman to be named to that position.

Dr. Badger also is on the staff at St. Louis Children's Hospital.

Steven A. Brody, class of '77, was the recipient of the 1976 William Osler Medal from the American Association for the History of Medicine. Brody submitted the winning essay entitled "The Life and Times of Sir Fielding Ould: Man-Midwife and Master Physician." Sir Fielding Ould was an 18th century Irish obstetrician who originated many practices, such as the episiotomy and the modern method for the delivery of the placenta, that are now considered a part of modern Ob-Gyn.

Brody attended the Annual Meeting of the Association May 14 in Galveston, Texas. He received the William Osler Medal and a prize of \$200. Brody is the first Washington University School of Medicine student to win this award.

Barry A. Siegel, M.D., has returned to the School of Medicine to resume his position as Director of the Division of Nuclear Medicine. Dr. Siegel was on leave-of-absence to serve a tour of duty with the Air Force in the Radiological Science Division in Bethesda, Md. During this time, Dr. Siegel was an assistant clinical professor of radiology at Johns Hopkins University School of Medicine.

Michel Ter-Pogossian, Ph.D., professor of radiology and director of the Division of Radiation Sciences received the Paul C. Aebersold Award for 1976 at the annual meeting of the Society of Nuclear Medicine last month in Dallas.

The Division of Orthopedic Surgery has announced that **Leo Whiteside, M.D.**, is the seventh recipient of the Dr. J. Albert Key fellowship.

The fellowship is given to outstanding residents in that division. After completing his residency here this summer, Dr. Whiteside will join the full-time staff in orthopedic surgery.

W. Maxwell Cowan, M.D., Ph.D., professor and head of the Department of Anatomy and Neurobiology, and Director of the Division of Biology and Biomedical Sciences, has been elected a



A new plaza area in front of McMillan and Maternity Hospitals provides a pleasant place to stroll or eat lunch.

Fellow of the American Academy of Arts and Sciences.

The American Academy of Arts and Sciences is an honorary society comprised of scholars in the humanities and sciences, and of several national leaders.

Psychiatrists Plan Annual Meeting

The American Academy of Clinical Psychiatrists will have its Second Annual National Meeting Oct. 8 and 9, in St. Louis.

One of the main speakers will be Samuel B. Guze, M.D., professor and chairman of the Department of Psychiatry and Vice Chancellor for Medical Affairs at the School of Medicine.

Interested psychiatrists may write Philip E. Bornstein, M.D., Vine Street Clinic, 610 East Vine Street, Springfield, IL 62703, for details about the meeting.

Radiation Oncology Director Named

Carlos A. Perez, M.D., professor of radiology, has been named director of the Division of Radiation Oncology at Washington University School of Medicine's Mallinckrodt Institute of Radiology, effective July 1, 1976.

Dr. Perez replaces Dr. William E. Powers, who will become research professor of radiation therapy at Thomas Jefferson University in Philadelphia.

A native of Colombia, South America, he received his M.D. degree from the Universidad de Antioquia Medical School in Medellin, Colombia. He served his residency in radiology at the Mallinckrodt Institute of Radiology and was a fellow in radiotherapy at M. D. Anderson Hospital and Tumor Institute in Houston for one year. He has been on the staff of Washington University since 1964 and was named professor of radiology in 1972.

'76-'77 Executive Council Announced

W. Edward Lansche, M.D. '52, instructor of clinical orthopedic surgery at Washington University School of Medicine, is the new president of the Medical Center Alumni Association. His term began July 1, 1976.

Other officers are George B. Rader, M.D. '51, instructor in clinical surgery, past-president, Mary Langston Parker, M.D. '53, associate professor of preventive medicine and director of University Student Health Services, president-elect, John F. Bergmann, M.D. '54, assistant professor of clinical psychiatry, vice president and Gordon W. Phil-

pott, M.D. '61, Harry Edison Professor of Surgery, secretary-treasurer.

Local members of the Executive Council include Edward T. Barker, M.D. '57, Jack Barrow, M.D. '46, Elmer B. Brown, M.D. '50, John D. Davidson, M.D. '52, James C. Ellsasser, M.D. '64, Donald H. Finger, M.D. '50, Ruth S. Freedman, M.D. '42, Bernard T. Garfinkel, M.D. '48, John C. Herweg, M.D. '45, John L. Horner, M.D. '36, Robert C. Kingsland, M.D. '37, Kenneth Koerner, M.D. '41, Lance J. Lembeck, M.D. '71, Frank B. Long, Jr., M.D. '47, Sydney B. Maughs, M.D. '35, George A. Oliver, M.D. '52, Thomas F. Richardson, M.D. '63, Benjamin F. Smith, Jr., M.D. '45, and former house officers: Fred D. Bauschard, M.D., Lee T. Ford, M.D., Charles Roper, M.D.

Members-at-large are Lester S. Gar-

finkel, M.D. '59, Louisville, Ky., Robert A. Huckstep, M.D. '48, Farmington, Mo., Frank B. Norbury, M.D. '48, Jacksonville, Ill., John W. Ubben, M.D. '45, Staunton, Ill. and former house officer Charles H. Rammelkamp, Jr., M.D., Cleveland, Ohio.

Ex-officio members: Samuel B. Guze, M.D. '45, Vice Chancellor for Medical Affairs, Washington University and M. Kenton King, M.D., Dean, Washington University School of Medicine.

Dr. Perez is chairman of the Radiation Therapy Oncology Group's Task Force on Cancer of the Lung; chairman of the Southeastern Cancer Study Group's Radiation Therapy Committee; and on the Advisory Committee of the Division of Cancer Treatment, National Cancer Institute, National Institute of Health.



Spencer T. Olin, a major contributor to the renovation and expansion of the Irene Walter Johnson Institute of Rehabilitation, and William H. Danforth, M.D., chancellor of the University, tour the new indoor track facilities during a recent reception for contributors to the Institute.

Class Notes

'20s

Arthur C. Fortney, '27, Mission Viejo, Calif., retired January 1.

'30s

Edward W. Cannady, '31, Belleville, Ill., has received the first Metropolitan St. Louis Geriatric Award, sponsored by Medigroup, Inc.

John R. Connel, '37, Denver, has retired after 15 years as Director of Pediatrics at Denver General Hospital. He now is doing ambulatory pediatrics in Denver's neighborhood health program.

'40s

Gordon F. Moore, '40, Alton, Ill. has been awarded the Ohio State University Alumni Association's Alumni Citizenship Award.

Hans-Karl Stauss, '43, Jackson, Miss., has been elected Chief-of-Staff at Hinds General Hospital.

Margaret B. McChesney, '49, San Francisco, has been named Director of Maternal and Child Health for Santa Clara County.

'50s

Richard V. Bradley, '52, St. Louis, has been elected President of the Central Eastern Missouri Professional Review Organization Committee.

Edwin W. Salzman, '53, Boston, is a Professor of Surgery at Harvard Medical School and Associate Director of Surgery at Beth Israel Hospital. He has received a Senior Faculty Fellowship of the Josiah Macy Foundation and will be spending a sabbatical year at the University of Cambridge, England in 1976-77.

Robert Rubin, '54, Florissant, Mo., is Chairman of the Department of Internal Medicine at Christian Hospital Northwest.

Quentin H. Lehmann, '56, La Mesa, Calif., and **Gerald E. Hanks, '59**, Sacramento, have been cited for distinguished achievements by being named Fellows of the American College of Radiology.

'60s

Edward A. Eikman, '67, Tampa, Fla., is Chief of the Nuclear Medicine Department at Tampa's Veterans Administration Hospital and president elect of the Florida Association of Nuclear Physicians.

Albert F. Wermuth, '67, Clinton, N.J., has joined the part-time faculty of Rutgers Medical School in the Department of Family Practice.

Donald R. Kirks, '68, Dallas, is Associate Professor of Radiology and Pediatrics at the University of Texas Southwestern Medical School and associate radiologist at Children's Medical Center.

Mary Ann Fletcher Hurley, '69, Glenview, Ill., is Assistant Professor of Pediatrics and Obstetrics-Gynecology at Northwestern University Medical School. She is Medical Director of the Special Care Nursery at Prentice Women's Hospital of Northwestern Perinatal Center.

William N. Neubauer, '69, Norfolk, Va., will leave his position as Chief of Surgery at the USPHS Hospital in Norfolk and Assistant Professor of Surgery at Eastern Virginia Medical School this month to enter private practice in Tucson, Ariz.

'70s

Lance Lembeck, '71, second year radiol-

ogy resident at Washington University, has received the Distinguished Alumni Award from San Diego State University College of Sciences.

Charles F. Shield III, '72, San Antonio, has been awarded a Fellowship in transplant surgery for the year 1977-78 at Massachusetts General Hospital.

Byron S. Cooper, '73, New York, will return this month to Washington University as a fellow in Pulmonary Medicine.

Occupational Therapy

Betty Phelps, OT '52, is an occupational therapy consultant at Miller's Manor, Peru, Ind. She has been included in **The World Who's Who of Women, 1976 Bicentennial Edition of Notable Americans of the Bicentennial Era, Dictionary of International Biography and Who's Who of American Women.**

Health Care Administration

Samuel White Jr., HA '55, has been named Executive Director of the American Academy of Medical Administrators in Chicago.

Arthur Crandall, HA '56, has been named Administrator of Santa Rosa Memorial Hospital in Santa Rosa, Calif.

James E. Pears, HA '59, has been named Administrator of Woman's Hospital of Texas, Houston.

Lewis W. Spencer, HA '63, has been named Administrator at Memorial Hospital of Natrona County, Casper, Wyo.

Orand David West, HA '64, has been named General Director of Leonard Moore Hospital in Natick, Mass.

James E. Raney, HA '69, has been named Administrator of Lockwood-McDonald Hospital in Petoskey, Mich.

Colonel Robert R. Rolfs, USAF, MSC, HA '69, has been named Chief of the Medical Facilities Division, Washington, D.C.

David J. Goode, HA '71, has been named Administrator of Community Hospital in Big Rapids, Mich.

Larry D. Rentfro, HA '72, has been named Assistant Administrator at St. John's Medical Center, Joplin, Mo.

Robert S. Curtis, HA '73, has been named Administrator of Lykes Memorial Hospital in Brooksville, Fla.

Robert M. Love, HA '73, has been named Director of Administrative Services at the Rehabilitation Institute of West Florida in Pensacola.

Richard P. Weatherford, HA '73, has been named Consultant at Oblinger-Smith Corp., Denver.

J. Larry Read, HA '74, has been named Hospital Administrator of Karl and Esther Hoblitzelle Hospital of Baylor University Medical Center in Dallas.

John M. Seegers, HA '74, has been named Administrative Assistant of Lakeside Veterans Administration Hospital in Chicago.

Douglas Trembath, HA '74, has been named Assistant Administrator of Jane Lamb Memorial Hospital in Clinton, Iowa.

Larry A. Dragan, HA '75, has been named Assistant Administrator at St. Anthony Hospital, Oklahoma City.

Thomas M. Kish, HA '75, has been named Associate Administrator of the Care Center Division at Bishop Clarkson Memorial Hospital in Omaha.

James A. Harding, HA '75 has been named Assistant Administrator of Memorial Hospital Inc. in Johnson City, Tenn.

Samuel M. Wachtel, HA '75, has been named Project Manager, Plant Utilization Review of the Blue Cross Association in Chicago.

In Memoriam

Guy D. Calloway, '17 June 5, 1976
James P. Conway, '30 Dec. 18, 1975
B. Shannon Gallagher, M.D.

. date unknown
Richard D. Kepner, '28 April 12, 1976
Stuart P. Lippert, '43 Feb. 27, 1976
Roy H. Moore, '10 March 21, 1976
Andrew Ryan, '31 Aug. 27, 1975
Fred S. Schenk, '20 July 31, 1975
Prior Shelton, '29 March 17, 1976
Charles H. Shumaker, '12 Nov. 6, 1975
Clyde Switzer, '03 date unknown
Robert Woodruff, M.D. April 12, 1976

President's Letter



Dear Fellow Alumni:

As president of the Medical Center Alumni Association I welcome one and all to another exciting year around this Medical Center. . . . All systems are "GO."

The renovation of Wohl Auditorium is completed and is in almost constant use for the Continuing Medical Education Programs under the able direction of Elmer Brown ('50).

The Alumni Teaching Scholar Award for 1976 went to Dr. Roy Peterson, Department of Anatomy, for the pre-clinical years, and to Dr. Morton F. Smith, Department of Ophthalmology, for the clinical years. The recipients of this

RECEPTION AMERICAN COLLEGE OF SURGEONS MEETING

TUESDAY
OCTOBER 12
ASTORIA ROOM
6:30 p.m.
CONRAD HILTON
CHICAGO

award are selected by the senior class and receive a financial grant of \$10,000 to their departments.

The Student Loan Fund, administered through the Alumni Office, is an increasingly vital service for needy students faced with emergencies. To date more than 100 students have benefited by your generosity. Money for the loan fund has been donated by grateful alumni along with their dues payment each year, and has been very appreciated by the students who have qualified for a loan. John Herweg ('45) oversees this fund.

Don't forget the Continuing Medical Education trip to London September 27. This promises to be an outstanding week with English Medicine. Also mark your calendars for the fourth annual Clinical Conference February 19, 1977 to be held again on Maui. The first conference on Maui was such a success we are returning by popular demand. You will be receiving more information about this trip later.

The Medical Center Alumni Office, under the direction of Claire MacConnell, is ready and able to give you any information or help that is available. Don't hesitate to ask for their assistance.

I am looking forward to seeing you in London and Maui, as well as around the Medical Center.

*W. Edward Lansche, M.D. '52
President,
Medical Center Alumni Association*



Medical Center faculty, staff and students find the new tennis courts a great place for a noon time game. The tennis courts cover the recently constructed Barnes underground parking garage.

Washington University
School of Medicine
660 South Euclid Avenue
St. Louis, Missouri 63110

